



DENTURE GUIDE[®] METHOD

USER MANUAL
2D Digital Preview and Maestro 3D Dental Studio



Scan the QR Code and watch the **tutorial videos**
on the Denture Guide[®] Method.

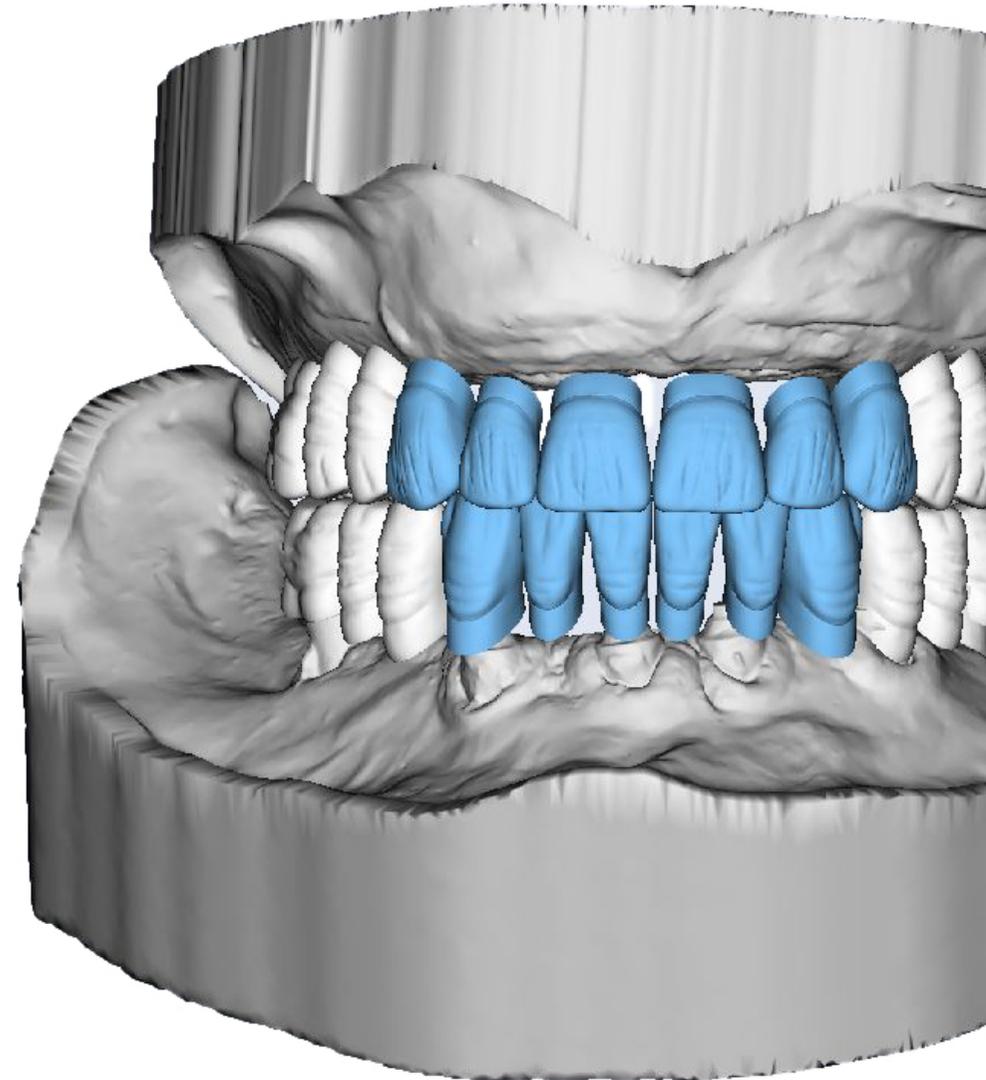
THE RUTHINIUM DIGITAL WORKFLOW!

From Clinical Information Sharing to Final dentures.

Ruthinium Digital workflow has the goal of improving efficiency without disrupting traditional dentist workflow. We recognize the importance of preserving established procedures, but at the same time we want to offer concrete support to optimize the entire process.

The key step in our proposal is the acquisition of data using scanners instead of physical models. This approach allows dentists to overcome the challenge of sending physical data to laboratories by replacing this practice with digital transmission. In this way, we simplify the workflow and reduce the inconvenience of physically transporting materials.

The transition to digital data collection represents a significant advance in modern dentistry, allowing practitioners to focus on their medical skills without having to worry about logistics. With our approach, we aim to facilitate this transition and offer dentists a more efficient and convenient way to manage data and collaborate with laboratories.



BITERIMS REFERENCE

The clinician performs the upper wax rim incision through two reference points using the Denture Guide calibrator.



PHOTOGRAPHIC PROTOCOL

Patient seated with straight back and with support behind the back of the head
Vertical camera or new generation smartphone
Aesthetic level parallel to the horizon
Focus on teeth/center of face





DIGITAL PREVIEW

Photographic previsualization software

1° IMPORTING DATA

Photo with smile and with retractors

The screenshot displays the 'PHOTOS' section of the software, divided into three tabs: 'SMILE OVERVIEW', 'SMILE MANAGEMENT', and 'SMILE FOR LABS'. The 'SMILE MANAGEMENT' tab is active, showing a grid of photo slots. The top slot, labeled 'Face frontal', contains a photo of a man smiling, with a red arrow pointing to the text 'PHOTO WITH SMILE'. The middle slot, labeled 'Intraoral frontal', contains a photo of the same man with a dental retractor in his mouth, with a red arrow pointing to the text 'PHOTO WITH RETRACTORS'. Other slots include 'Alternative intraoral 1', 'Alternative intraoral 2', 'Rest position', 'Stone', 'e' phoneme', and 'Wax-Up', all of which are currently empty.



DIGITAL PREVIEW

Photographic previsualization software

2° CALIBRATION

Process of turning photo pixels into actual measurements and to correctly position the midline

LENGTH SCALE

SMILE OVERVIEW | SMILE MANAGEMENT | SMILE FOR LABS

Image rotation: [Slider]

Length scale: Custom: 20.0 mm

The known measure should be set to 20mm.

HOW TO DO?
Following the reference points incised by the clinician on the upper rims through the use of the calibrator.

Place the photo in the center of the **RED** line (virtual midline) so as to verify that it coincides with the midline incised in the rim by the clinician

Show grid Show symmetry line



DIGITAL PREVIEW

Photographic previsualization software

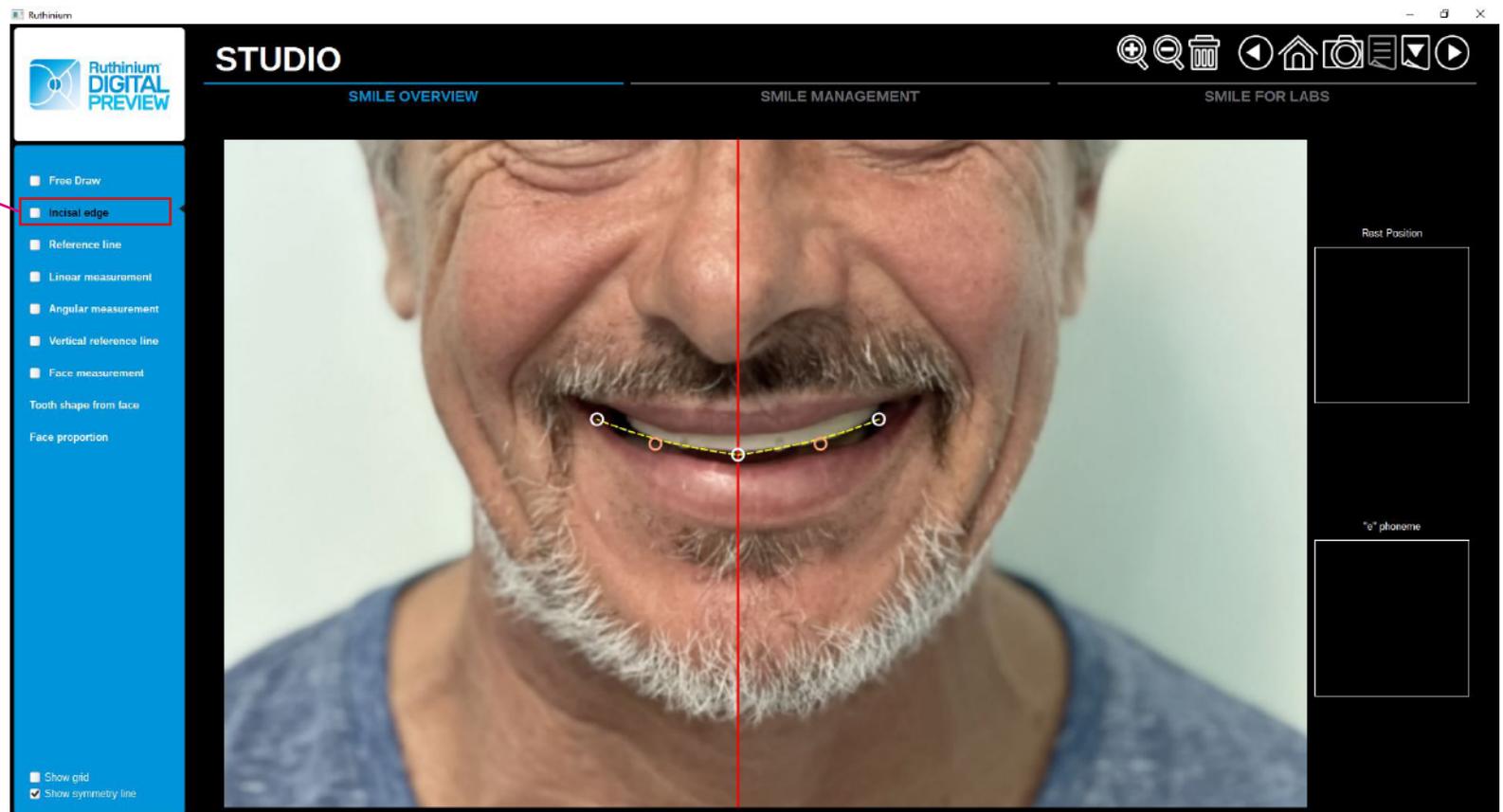
3° FACE ANALYSIS

On the left menu are the following software functions useful as a proper face analysis:

Incisal edge

Clicking in the center of the red line near the upper bi-terim will appear a dynamic trace with which you will outline the occlusal plane.

Automatically **two orange dots** will appear with which you can modify the arch.





DIGITAL PREVIEW

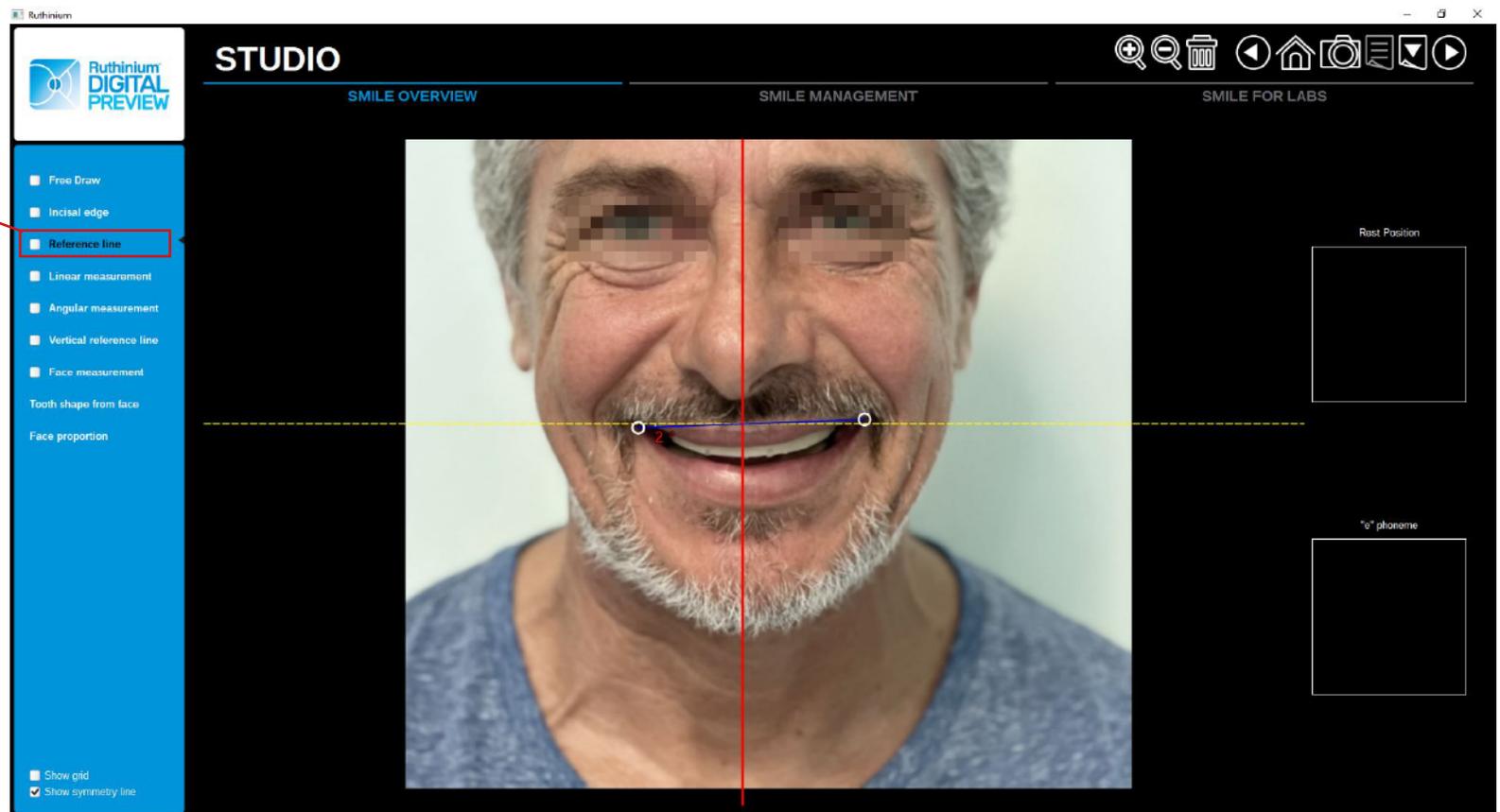
Photographic previsualization software

3° FACE ANALYSIS

On the left menu are the following software functions useful as a proper face analysis:

Reference line

Setting two points will generate a line: this tool allows you to calculate the degree of angle between the two points.





DIGITAL PREVIEW

Photographic previsualization software

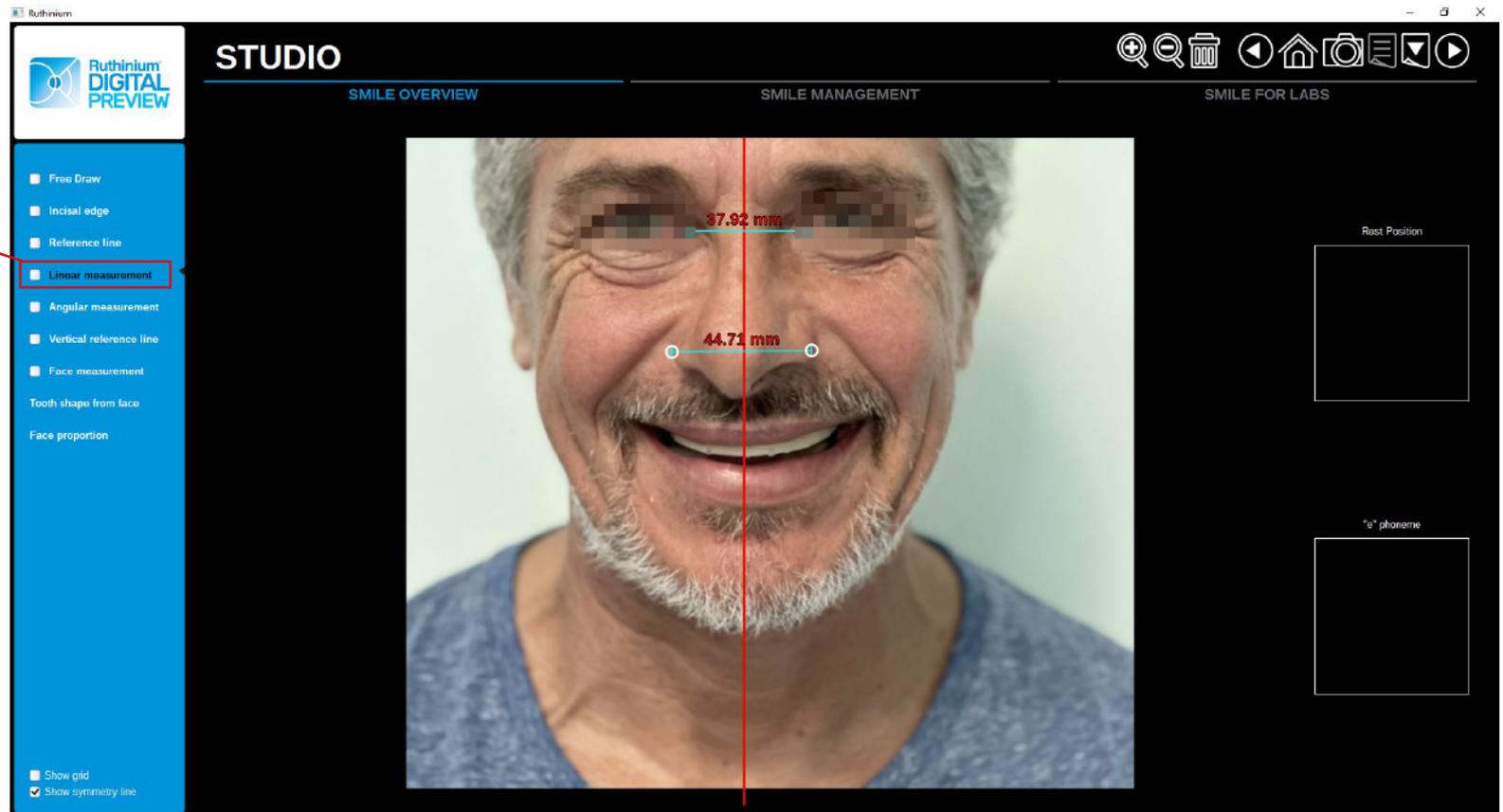
3° FACE ANALYSIS

On the left menu are the following software functions useful as a proper face analysis:

Linear Measurement

Instrument to measure a given space dictated by two points.

Useful for checking the distance between canine and canine.





DIGITAL PREVIEW

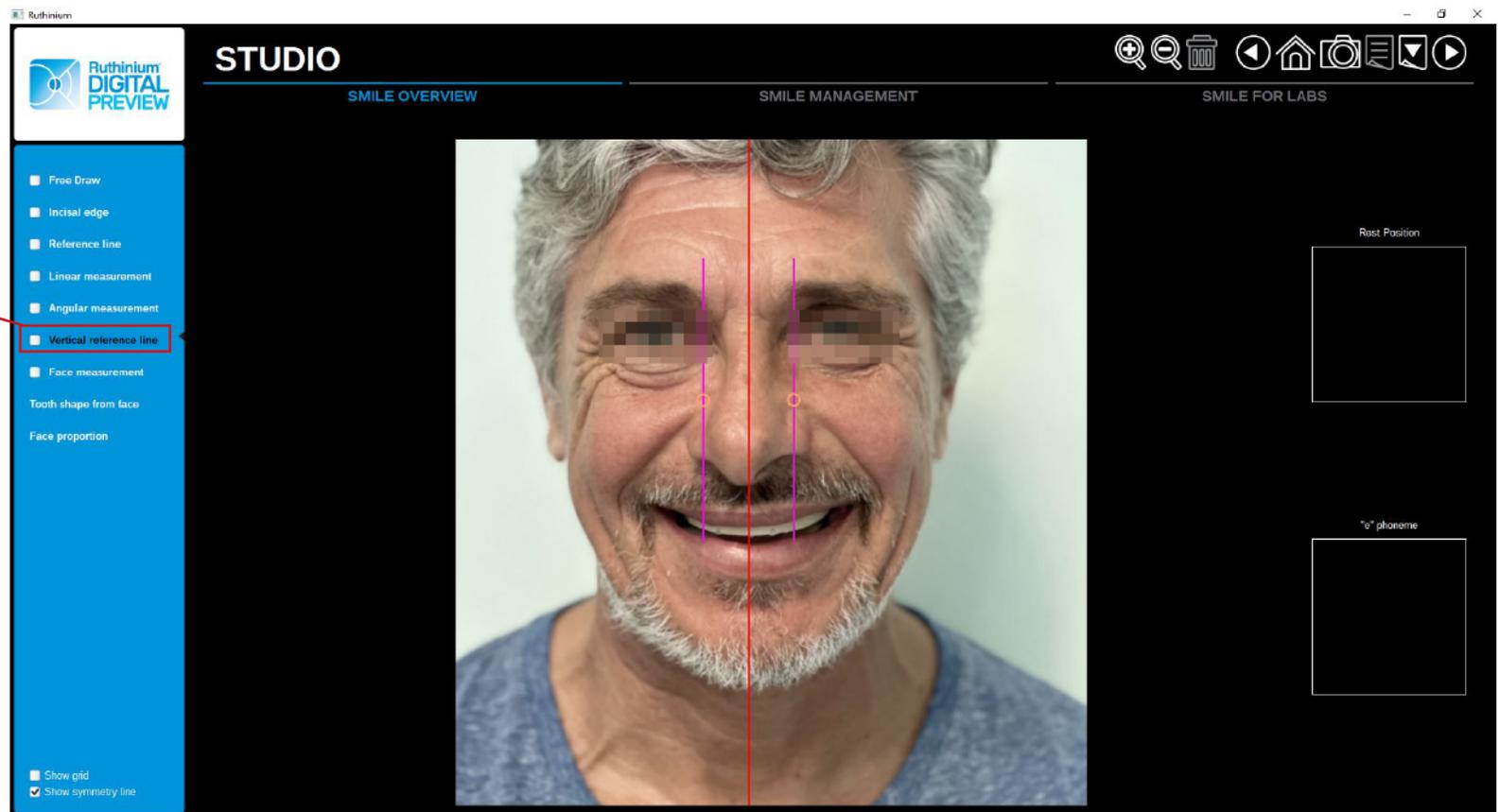
Photographic previsualization software

3° FACE ANALYSIS

On the left menu are the following software functions useful as a proper face analysis:

Vertical reference line
Tool to create two vertical lines.

Useful for checking the correct position of canines.





DIGITAL PREVIEW

Photographic previsualization software

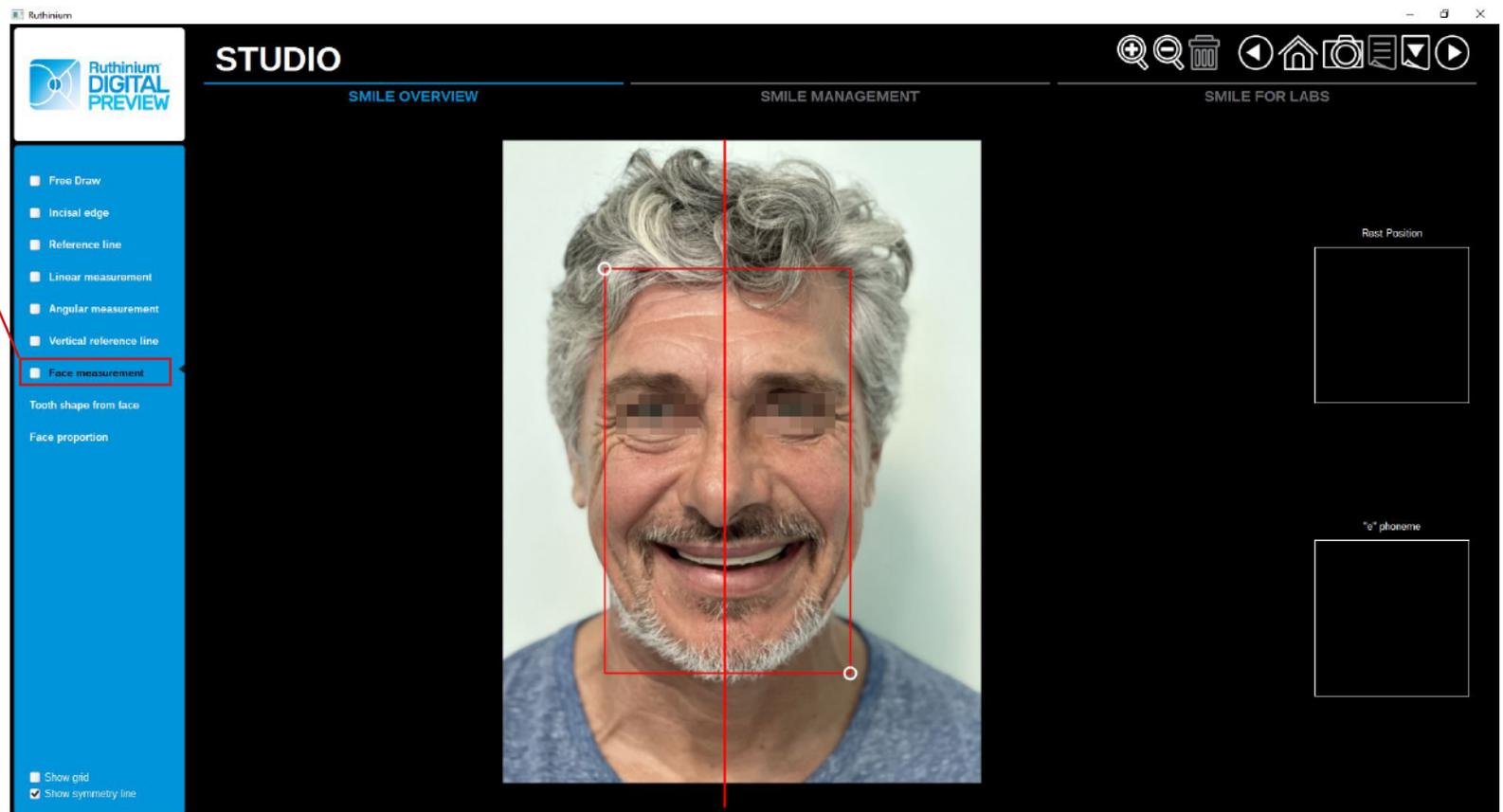
3° FACE ANALYSIS

On the left menu are the following software functions useful as a proper face analysis:

Face measurement

Place the **RED** rectangle in the following way: **The upper side** should correspond to the hairline, (with bald patient it should correspond to the first wrinkle of the forehead). **The lower side** should correspond to the base of the chin. **The laterals** must correspond to the end of the cheekbones.

Through these parameters the software will calculate 1/16th of the area to recommend the correct size of the upper central incisors



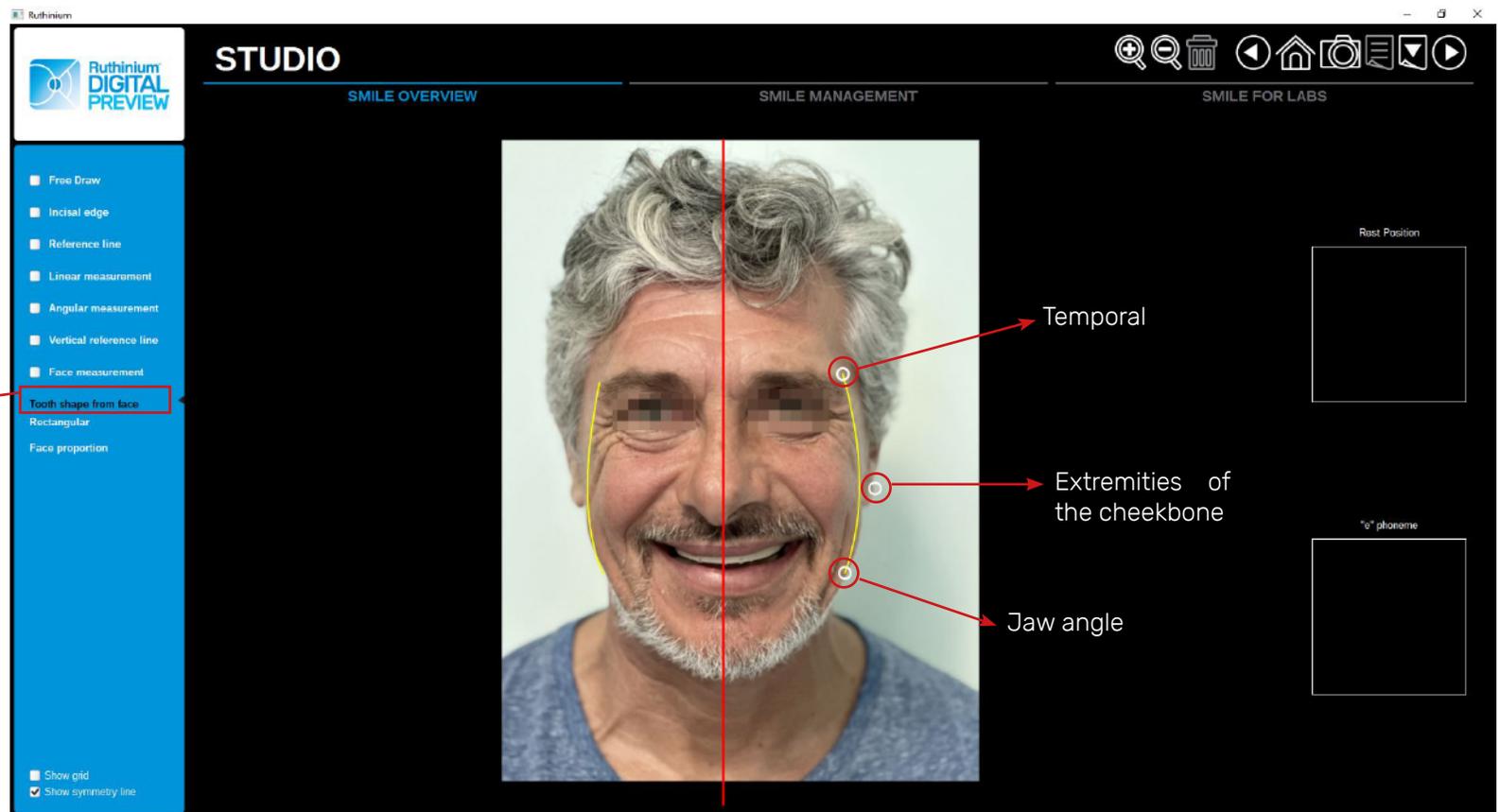


DIGITAL PREVIEW

Photographic previsualization software

3° FACE ANALYSIS

On the left menu are the following software functions useful as a proper face analysis:



Tooth shape from face

Useful tool for identifying the ideal shape of the upper central incisors (square, triangular, oval).



DIGITAL PREVIEW

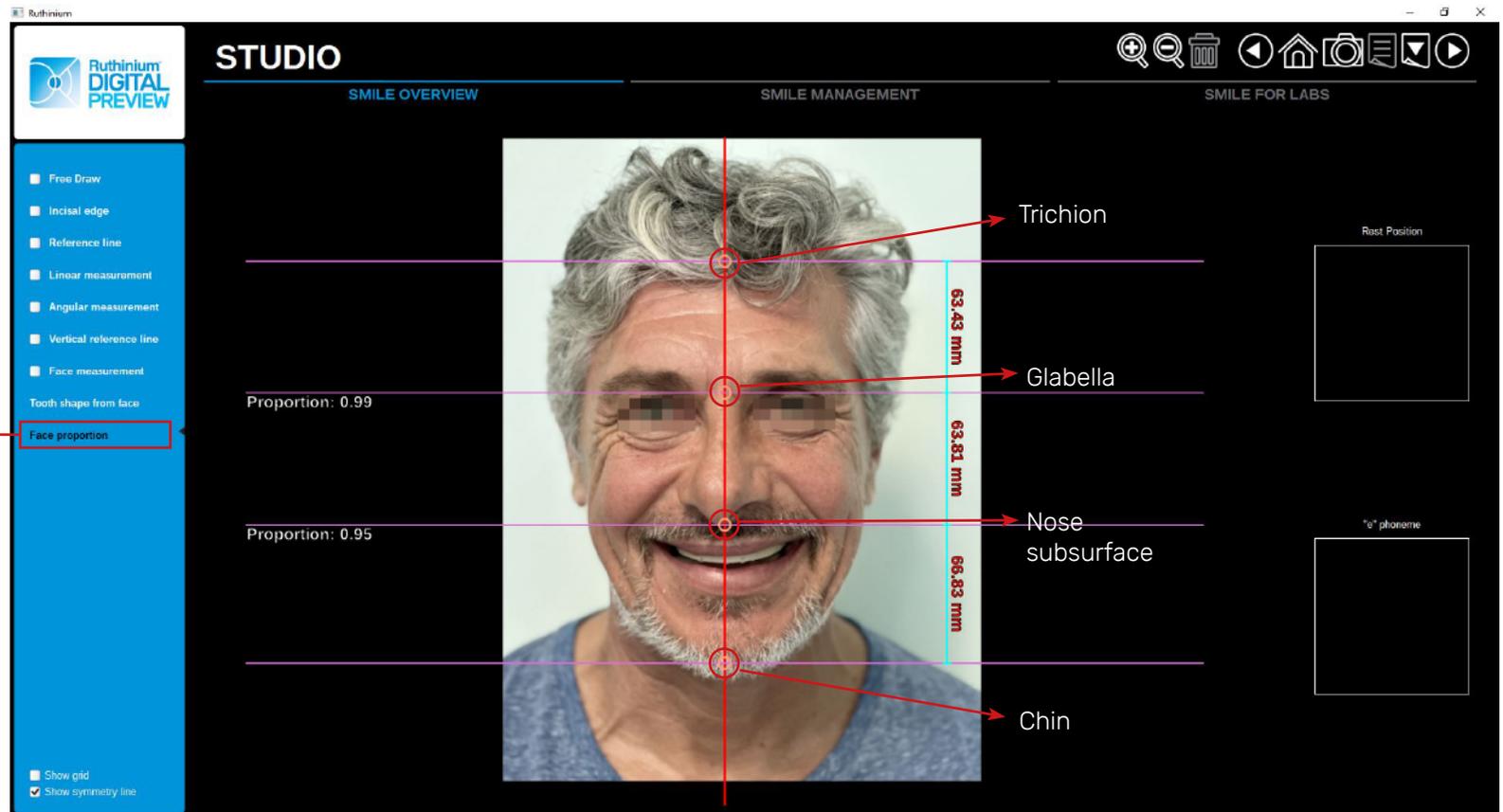
Photographic previsualization software

3° FACE ANALYSIS

On the left menu are the following software functions useful as a proper face analysis:

Face proportion

Useful tool for face analysis based on face proportions.



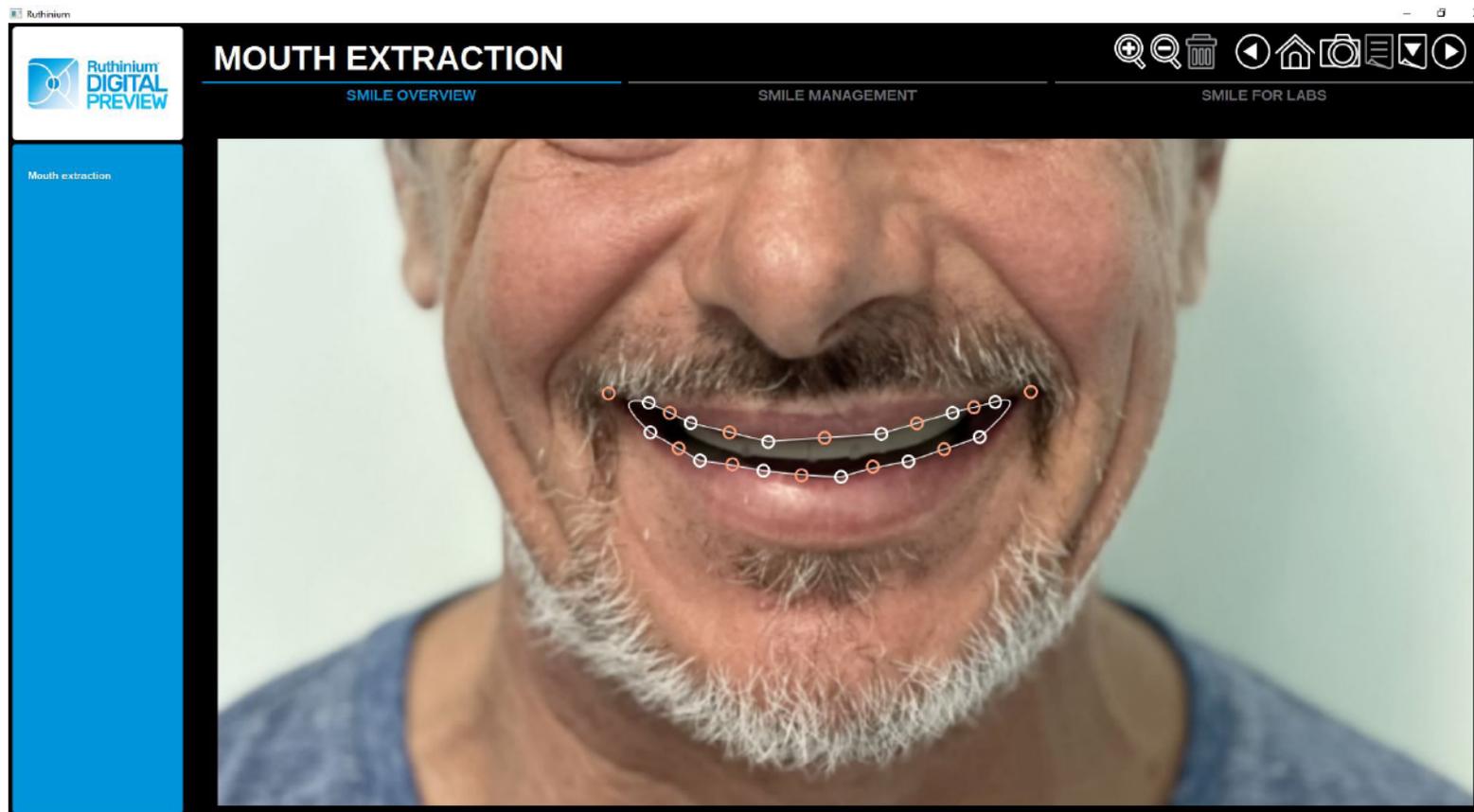


DIGITAL PREVIEW

Photographic previsualization software

4° ENDO-ORAL AREA CUTOUT

Cropping the photo



Following the contour of the lips, a cutout of the endo-oral area is created with a series of white dots.

With **ORANGE** dots you can modify the curves and refine the cutout.

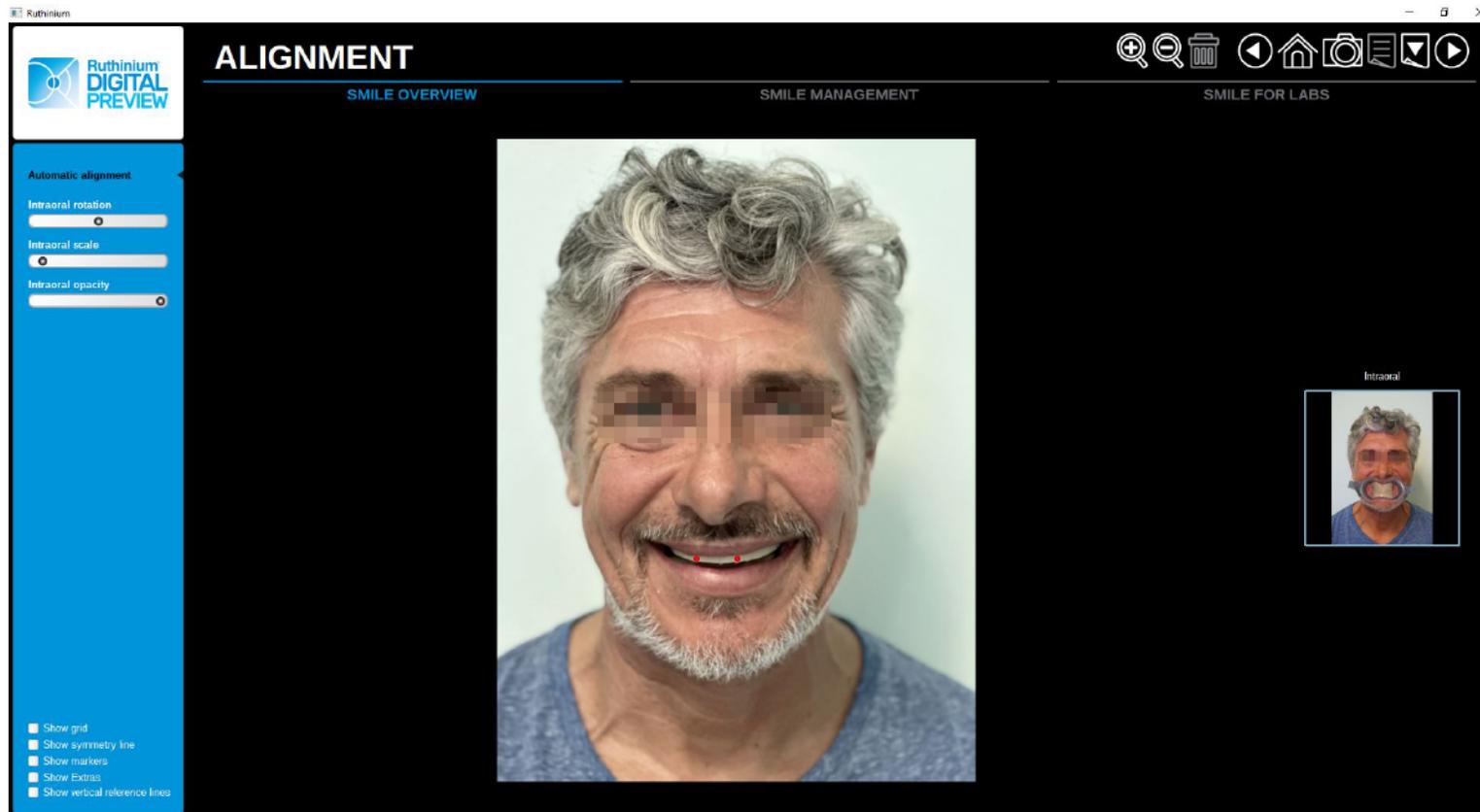


DIGITAL PREVIEW

Photographic previsualization software

5° PICTURE ALIGNMENT

Frontal Face with Intraoral Frontal



You have to align the rims through the two reference points that were incised by the clinician.



DIGITAL PREVIEW

Photographic previsualization software

6° TEETH SETUP

The software opens the library of Ruthinium **Acry Smart** and **Acry Plus** commercial teeth indicating which one is most correct to use based on the information provided previously. The choice of tooth is not constrained, it can be changed manually based on an individual choice criterion.

Choice of the desired Ruthinium library

The screenshot displays the Ruthinium Digital Preview software interface. The main window is titled "ANTERIOR UPPER" and is divided into three sections: "SMILE OVERVIEW", "SMILE MANAGEMENT", and "SMILE FOR LABS".

- SMILE OVERVIEW:** Shows a photograph of a smiling man with grey hair and a beard. The eyes are blurred for privacy.
- SMILE MANAGEMENT:** A vertical sidebar on the left contains tooth shape options: Rectangular, Triangular, Oval, Squared, Acry smart, and Acry plus. The "Acry smart" option is highlighted with a red box, and a red arrow points to it from the text "Choice of the desired Ruthinium library".
- SMILE FOR LABS:** A grid of seven tooth sets is displayed, each with a small data table and a label:
 - TC18: Ruthinium Acry smart TC18
 - TC25: Ruthinium Acry smart TC25
 - TC35: Ruthinium Acry smart TC35
 - TS1: Ruthinium Acry smart TS1
 - TS12: Ruthinium Acry smart TS12
 - TS14: Ruthinium Acry smart TS14
 - TS3: Ruthinium Acry smart TS3

To the right of the main window, a separate window shows a zoomed-in view of the tooth sets, with labels for Ruthinium Acry smart TC18, Ruthinium Acry smart T14, and Ruthinium Acry smart TM30.

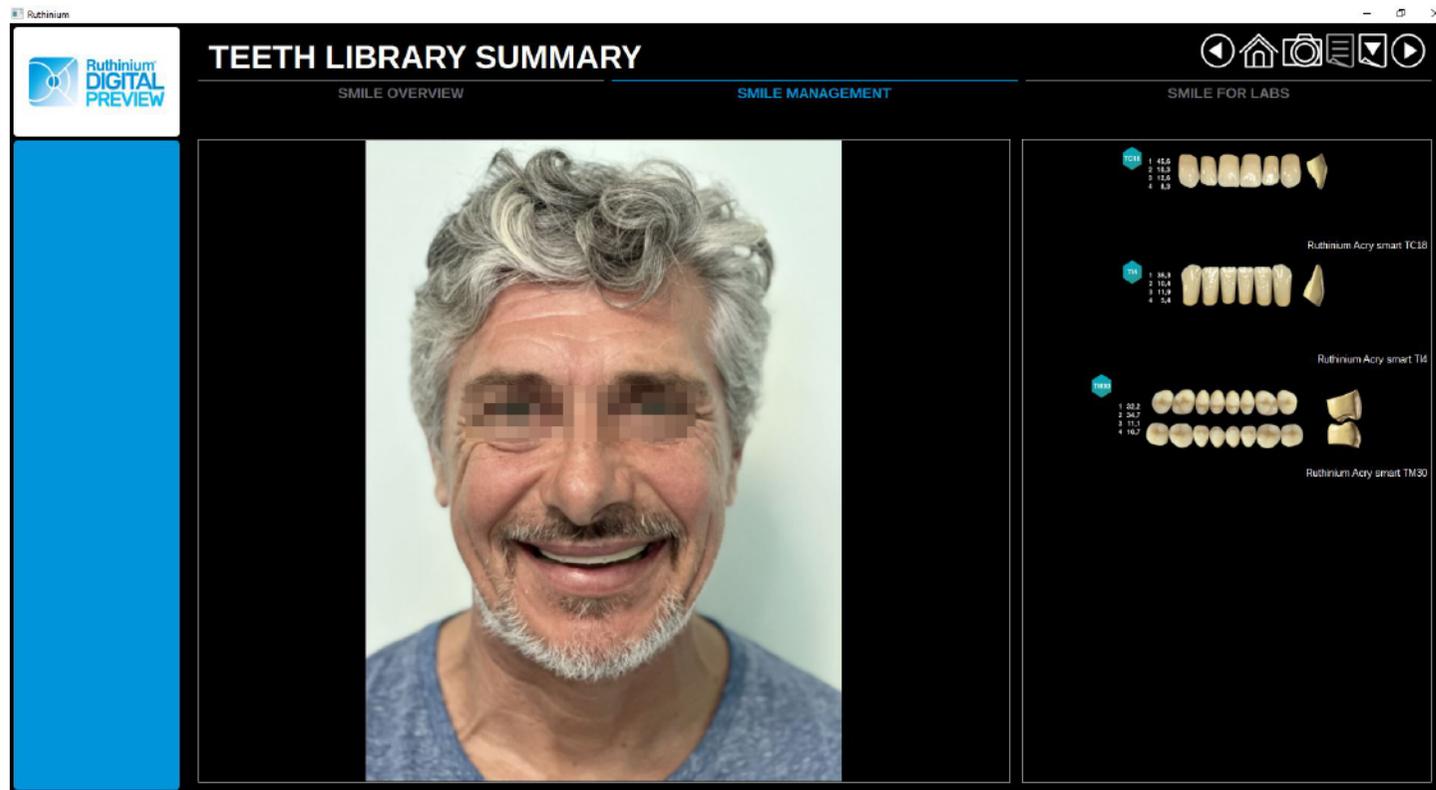


DIGITAL PREVIEW

Photographic previsualization software

6° RECAP TEETH SETUP

The software will indicate the correct articulation





DIGITAL PREVIEW

Photographic previsualization software

7° TEETH SETUP

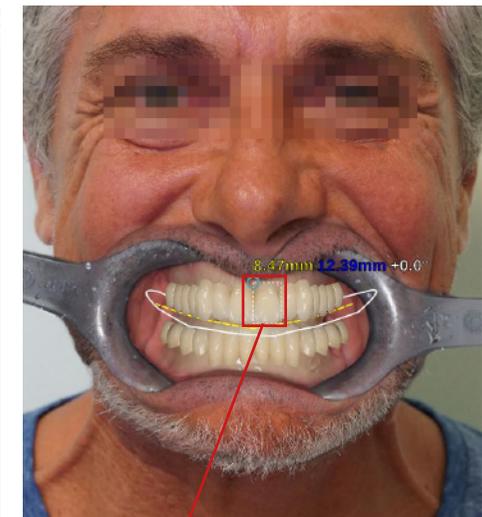
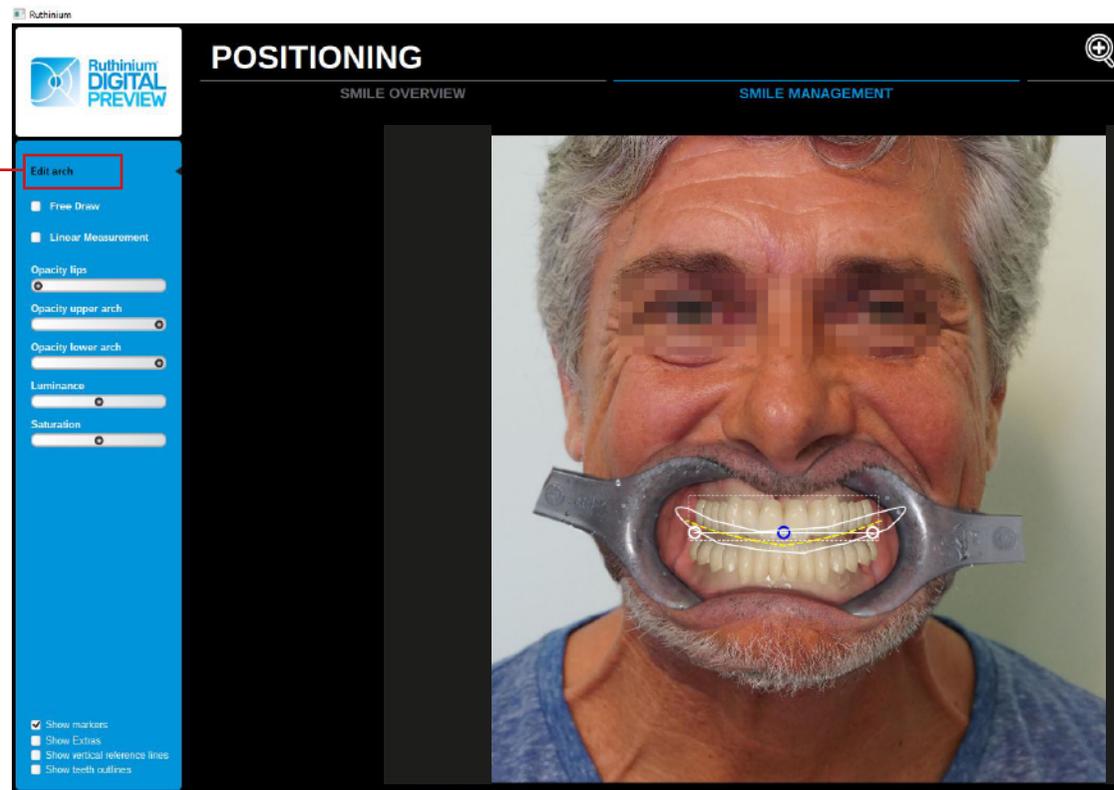
The software will automatically place images of the chosen teeth within the picture going to create an aesthetic assembly.

NB: The teeth are not in 3D STL format but have been photographed one by one and inserted within the software to create an aesthetic preview. Realistic fitting will have to be done with the 3D Denture Guide software.

Edit arch

By clicking on the **BLUE** circle in the center of the photo to you can move the entire arch.

With the white lateral circles you always go to work on the entire arch changing the curvature of the posterior teeth



Clicking on the individual tooth, a **BLUE** dot will appear with which the tooth can be rotated and moved.



DIGITAL PREVIEW

Photographic previsualization software

8° EXPORT OUTLINES

The outlines will later serve on the Denture Guide software as a reference in photographic aesthetic previsualization

HOW TO DO?
From the **TEETH POSITIONING** section, click on **"Show teeth outlines"**. Red outlines will appear.

Export the file by clicking on the menu in the upper right corner **"Export current page"**.

Saturation
[Slider]

Outlines width
[Slider]

Show markers
 Show Extras
 Show vertical reference lines
 Show teeth outlines



DIGITAL PREVIEW

Photographic previsualization software

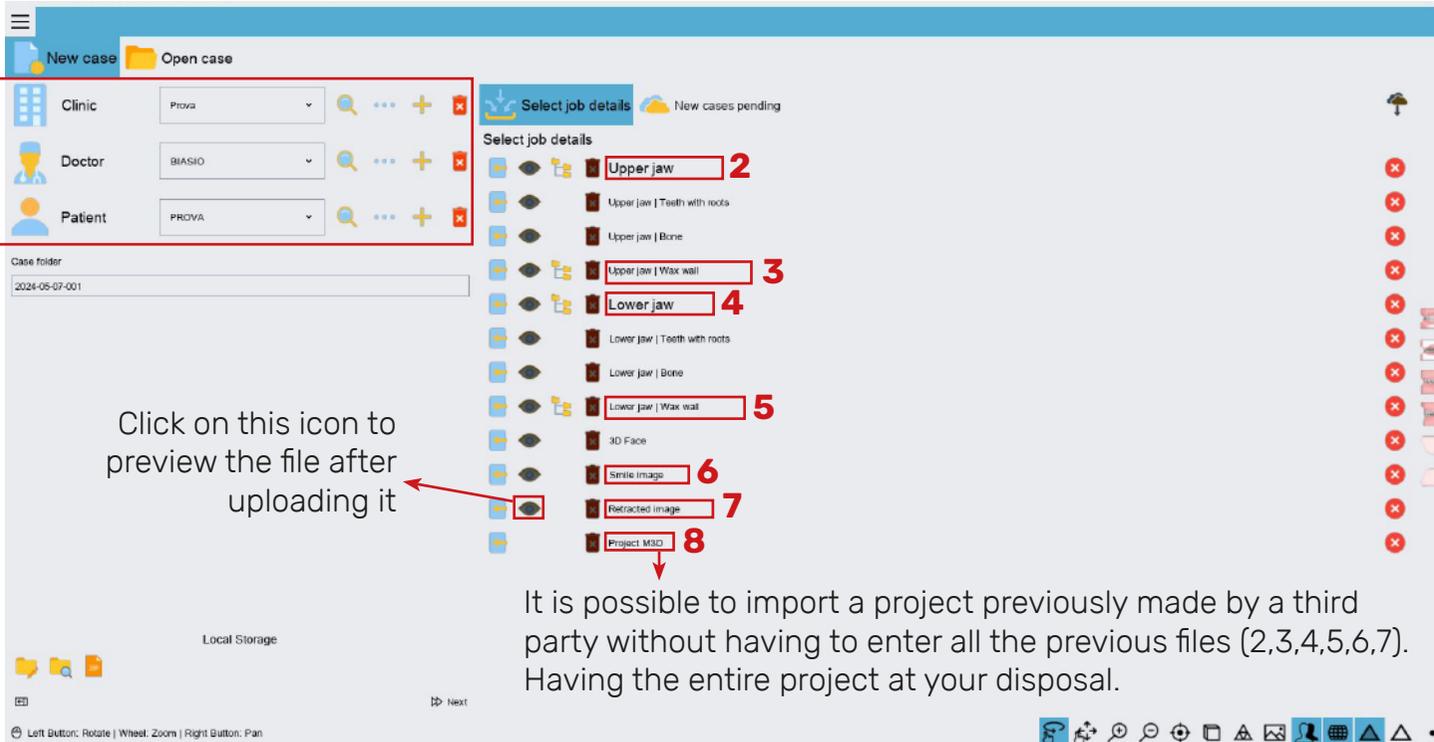
9° AESTHETIC PREVISUALIZATION

Possibility to generate the project report in PDF format within will be present the complete analysis of the patient.

 **HOW TO DO?**
Click on the menu in the upper right-hand corner, "**Generate report**"

1° IMPORTING STL FILES TO THE SOFTWARE

In this section, the dental technician can fill in by entering the data:
 Clinic Name
 Doctor Name
 Patient Name



1

2

3

4

5

6

7

8

Select job details

Upper jaw

Upper jaw | Teeth with roots

Upper jaw | Bone

Upper jaw | Wax wall

Lower jaw

Lower jaw | Teeth with roots

Lower jaw | Bone

Lower jaw | Wax wall

3D Face

Smile image

Retracted image

Project M3D

Click on this icon to preview the file after uploading it

It is possible to import a project previously made by a third party without having to enter all the previous files (2,3,4,5,6,7). Having the entire project at your disposal.

Local Storage

Left Button: Rotate | Wheel: Zoom | Right Button: Pan

2° OCCLUSAL PLANE SETTING

Analysis and measures Virtual Setup Bite Designer Smile Creator Appliance Creator

Change local origo

Occlusal plane with 3 points

Reset

Upper jaw

Show Occlusal Plane

Move points on plane

Help

Double-click on the model to add the control point.

Next Cancel

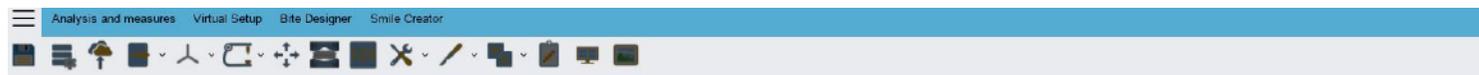
Left Button: Rotate | Wheel: Zoom | Right Button: Pan

Possible to choose upper or lower arch

Add the 3 control points on the model to create the Occlusal Plane.

NB: To draw the arch, the first point should be made on the left

2° OCCLUSAL PLANE SETTING



Hide Transversal Plane

Automatic border

Height - 3.00 mm +

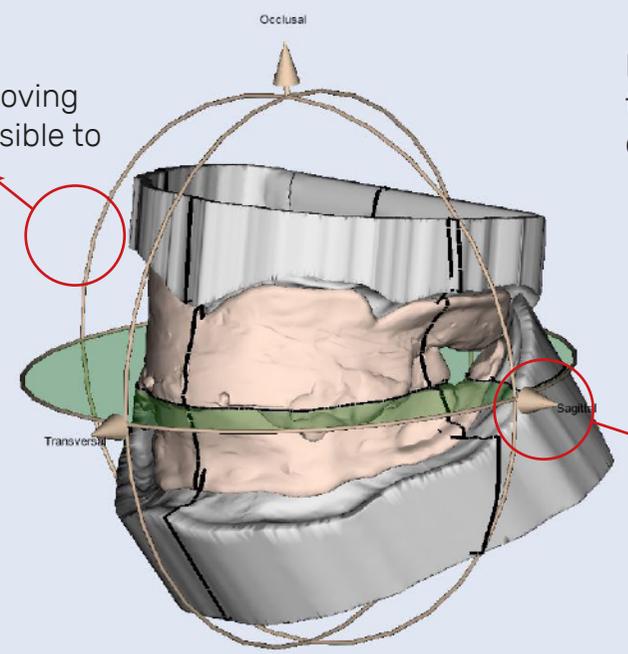
Radial Extrusion - 2.50 mm +

Help

Previous Next Cancel

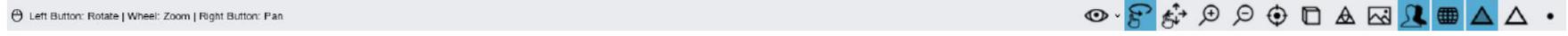
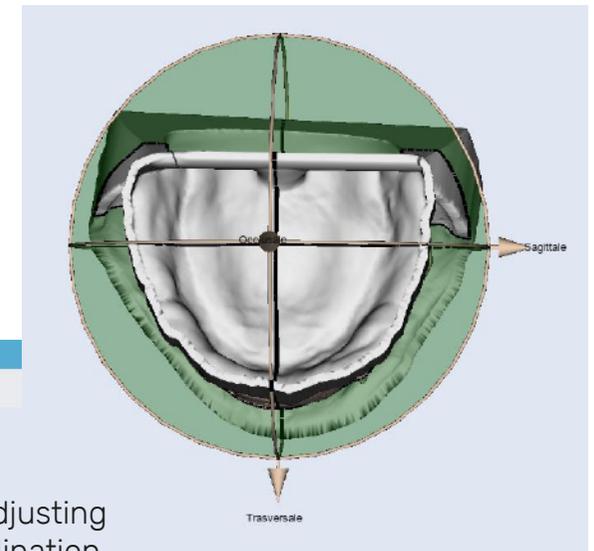
By clicking and moving the arches, it's possible to rotate the Plan

Allows automatic creation of model borders with radial extrusion.



Possibility of adjusting the correct inclination of the Occlusal Plane

By clicking and moving the arrows you can translate the Plan



3° AVAILABLE TOOLS

Select the "Smile Creator" module.

File export

Base modeling

Picture/STL alignment

endo-oral Cropping

Gingival Crest

Teeth assembly

Base creation

Template creation

Tripod creation

Gestione della raccolta dati

Choice of different views:
- Front
- Back
- Left
- Right
- Top
- Bottom
- Open mouth

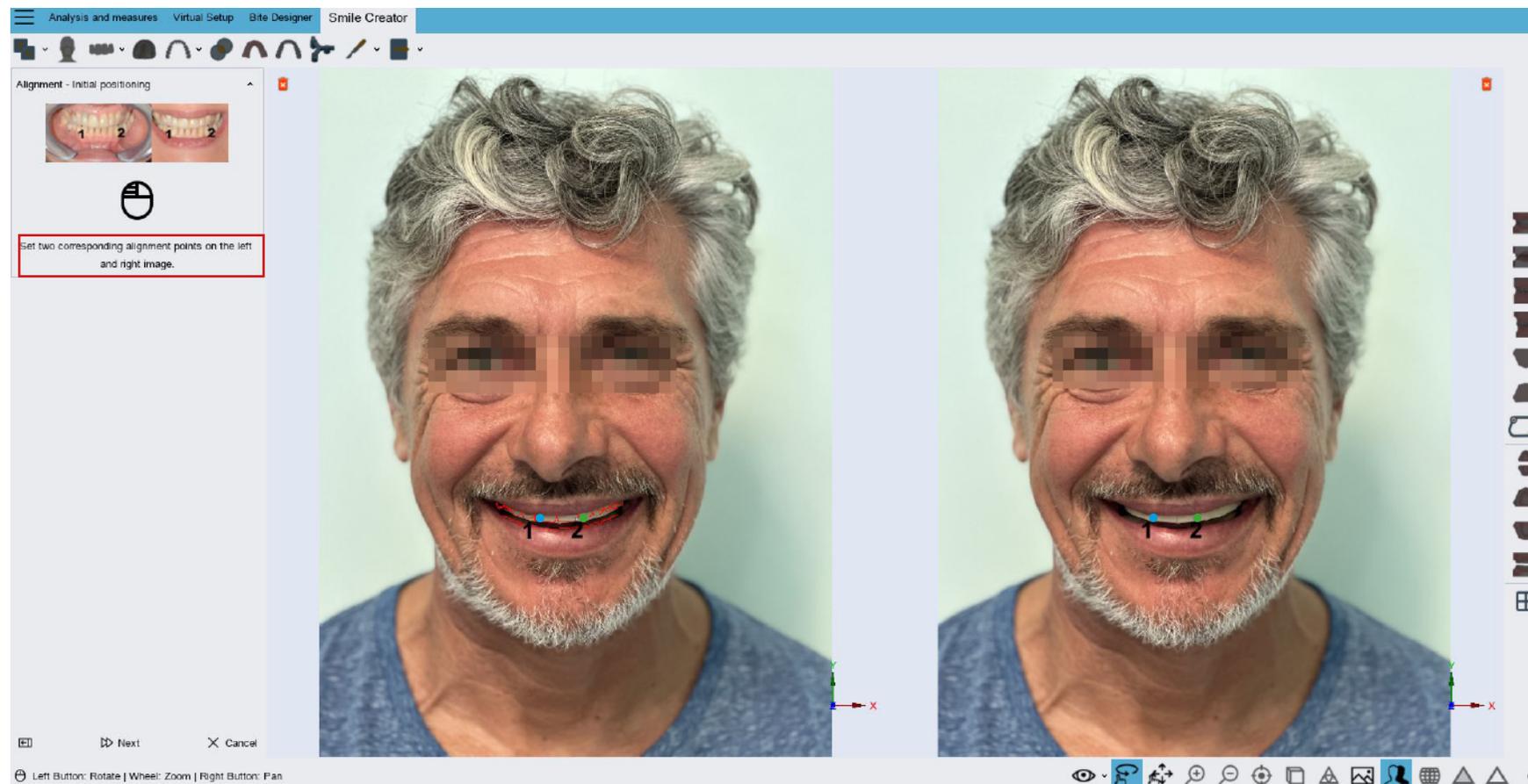
Choice of different views:
Maxillary
Mandibular
Both

Left Button: Rotate | Wheel: Zoom | Right Button: Pan

The screenshot shows the M3D Studio software interface with the 'Smile Creator' module selected. The interface includes a top menu bar with 'Analysis and measures', 'Virtual Setup', 'Bite Designer', and 'Smile Creator'. A central 3D model of a dental arch is displayed. On the left, a tree view lists various components like 'Upper jaw', 'Wax wall', '3D Denture Guide | Plaque', '3D Denture Guide | Template', 'Tripod', 'Rings', and 'Teeth'. On the right, there are view selection icons and a 'Gestione della raccolta dati' (Data Collection Management) panel with toggle switches for 'Model', 'Wax wall', '3D Denture Guide - Plaque', '3D Denture Guide - Template', 'Anatomy', 'Retracted image', and 'Smile image'. Annotations with red arrows point to these various elements, explaining their functions.

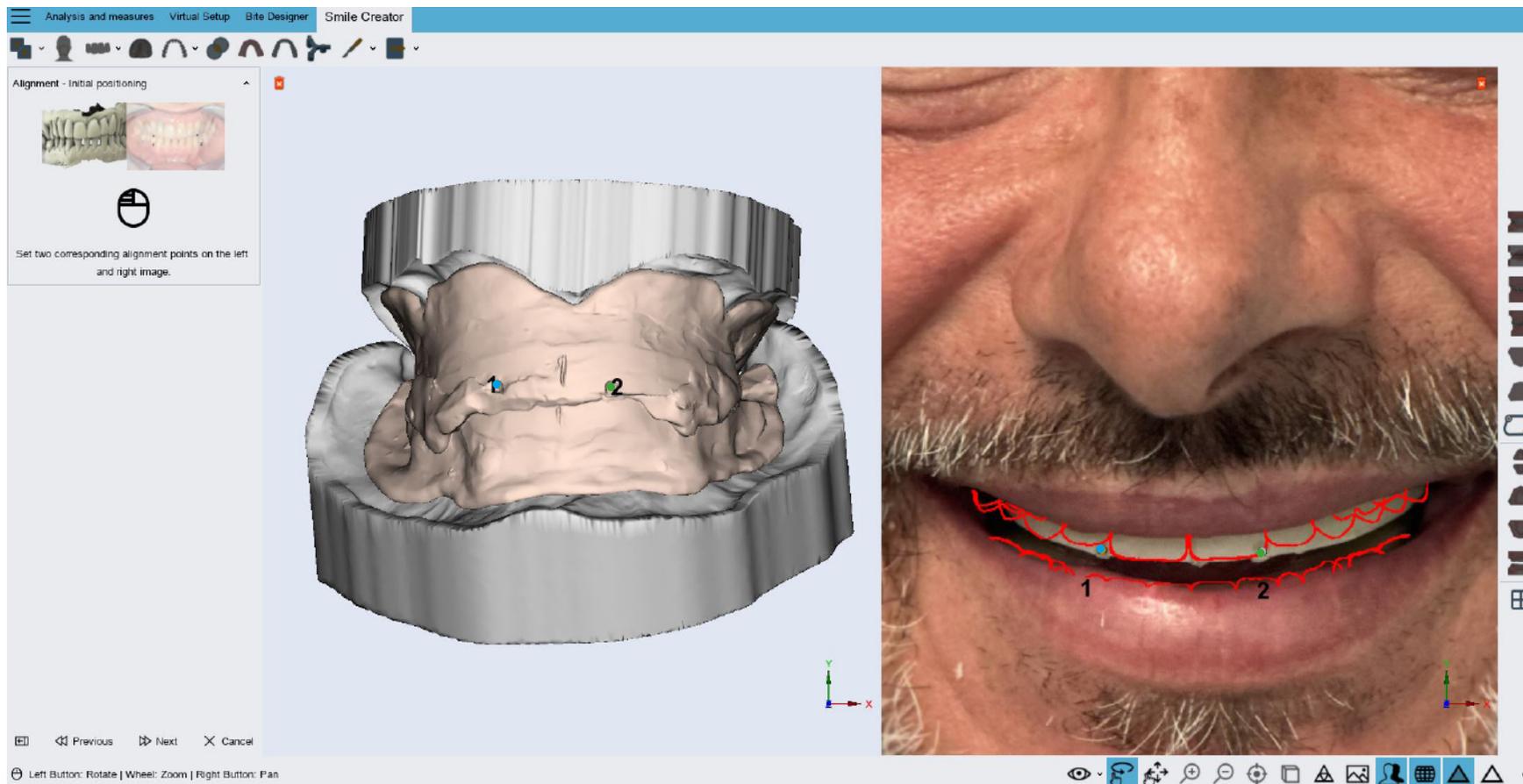
3° FILE ALIGNMENT WITH THE PICTURE

Through the two reference points incised by the clinician on the upper rims through the use of the calibrator.



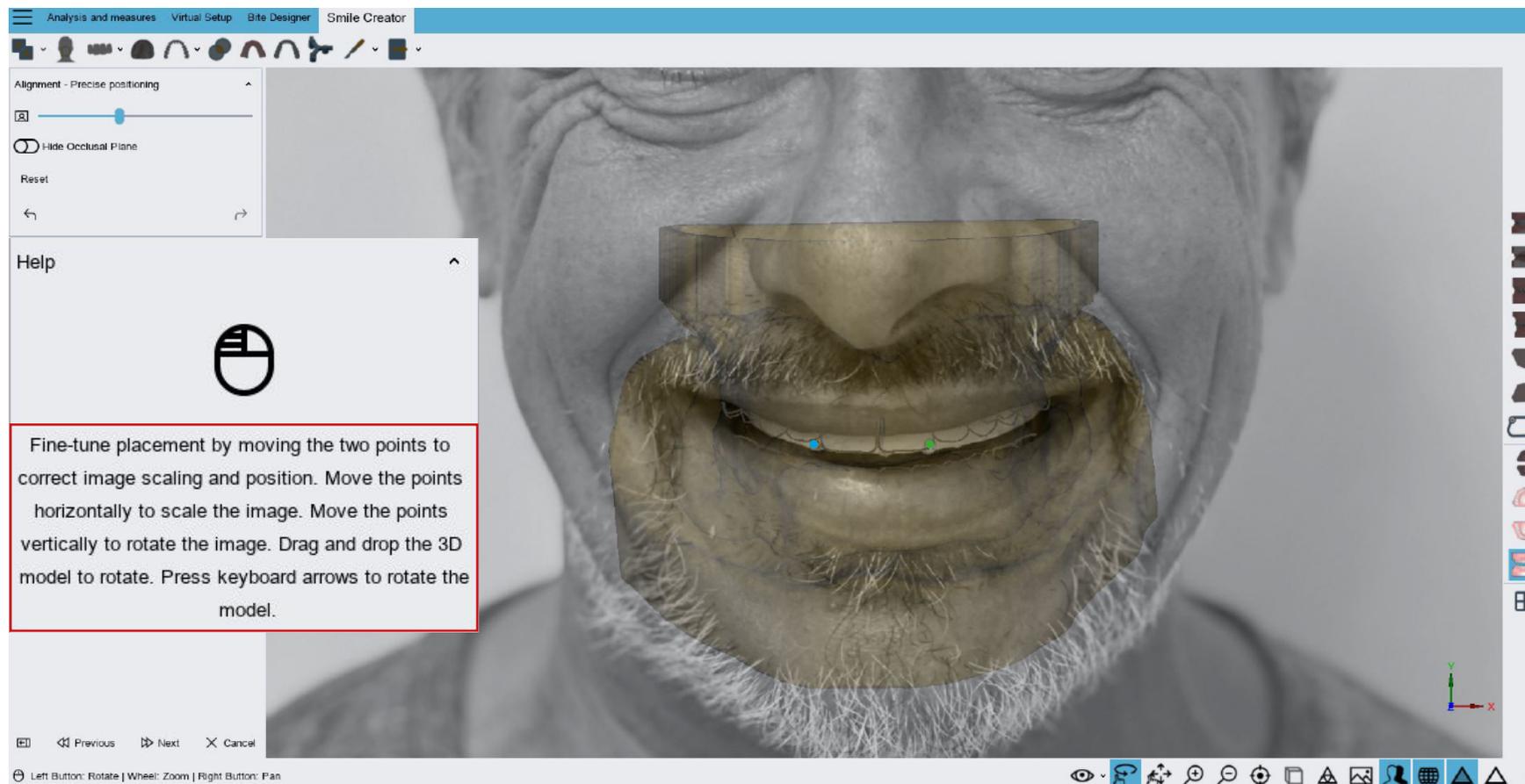
3° FILE ALIGNMENT WITH THE PICTURE

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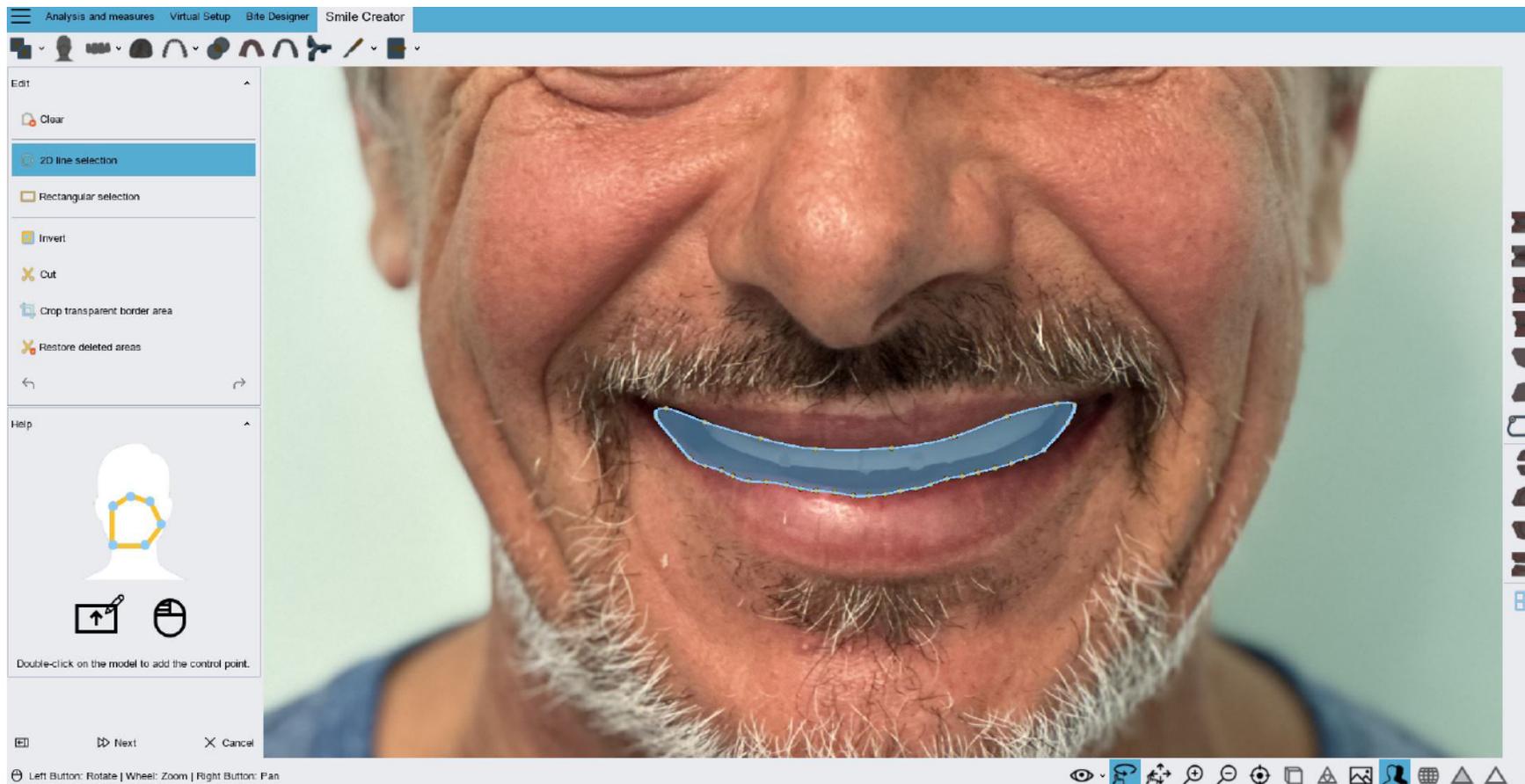


M3D STUDIO - DENTURE GUIDE MODULE

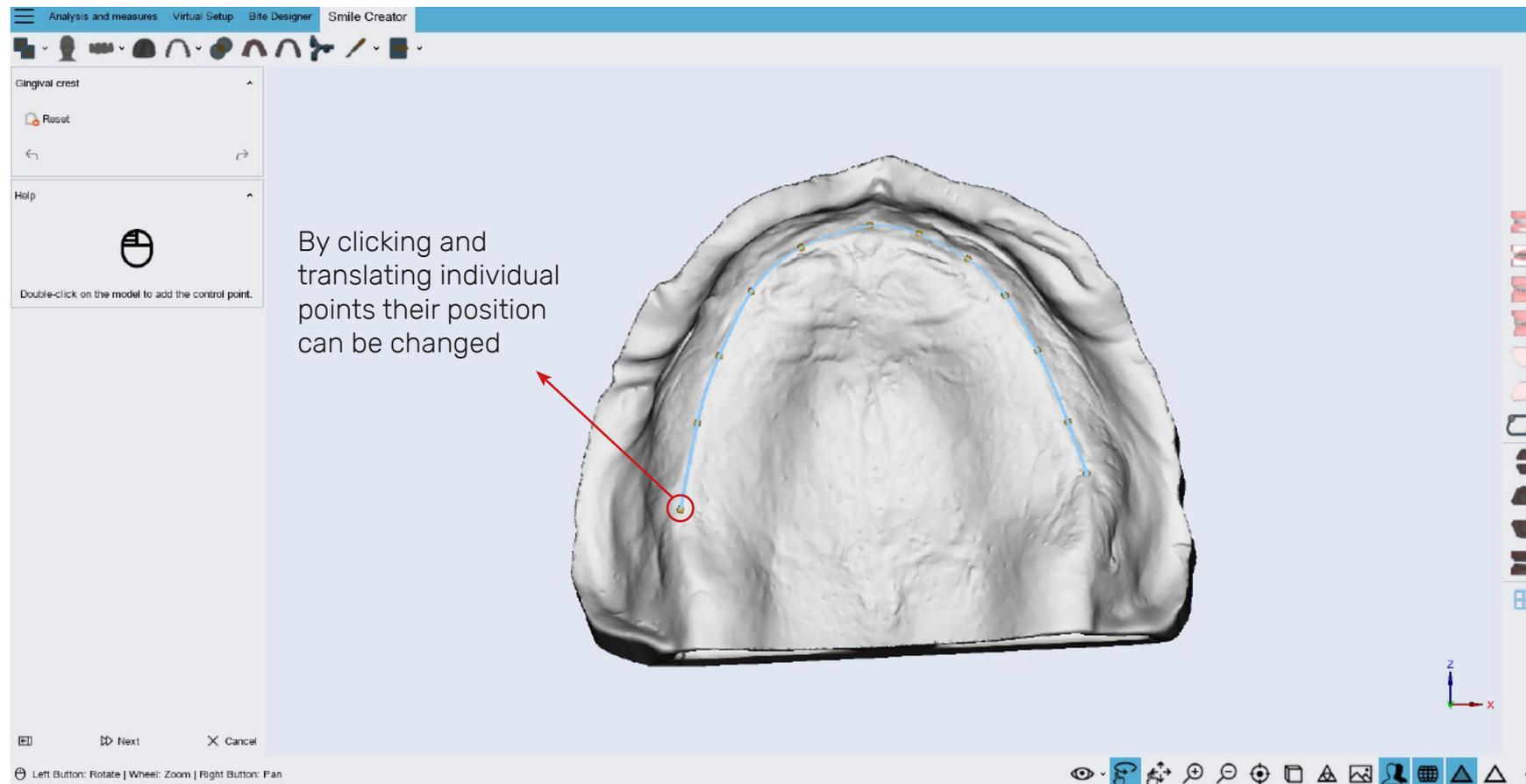
Digital setup software

4° CROPPING PHOTO ENDO-ORAL AREA

Double-clicking the mouse on the model to add control points.



5° UPPER AND LOWER GINGIVAL CREST DESIGN



6° TEETH SETUP

The screenshot displays the 'Anatomy' window in the M3D Studio software. The window contains the following settings:

- Library: Default
- Brand: Ruthinium
- Model: AcryPlus
- upper | Incisors: P2
- lower | Incisors: X5
- Posterior left | Posterior right: Z2

A red box highlights these settings, and a red arrow points from this box to a text box on the right. The text box contains the following text:

The teeth previously used in the Digital Preview software are chosen.

The interface also shows a 3D model of a denture with teeth numbered 18 through 38. The software has a menu bar with 'Analysis and measures', 'Virtual Setup', 'Bite Designer', and 'Smile Creator'. The left sidebar contains 'Placement Correction | 3D Denture Guide' and 'Movement Overview' sections. The bottom status bar indicates 'Left Button: Rotate | Wheel: Zoom | Right Button: Pan'.

6° TOOLS AVAILABLE FOR TOOTH ASSEMBLY

Show/hide tooth

Remove tooth

Reset tooth position

The grid with parameters allows for micro movements on tooth placement

Allows the tooth or groups of teeth to be translated or rotated by constraining them in one direction or plane

Placement Correction | 3D Denture Guide

Movement Overview

TIP - 0.00°

Rotation - 0.00°

Torque - 0.00°

Buccal - Lingual - 0.00 mm

Extrusion | Intrusion - 0.00 mm

Mesial - Distal - 0.00 mm

SHIFT + left mouse button to translate.

Constrained translation: Free

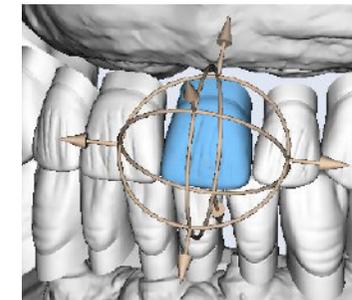
CTRL + left mouse button to rotate.

Constrained rotation: Free

Intersection

Left Button: Rotate | Wheel: Zoom | Right Button: Pan

Show/Hide manipulator



Tooth-by-tooth setup overview

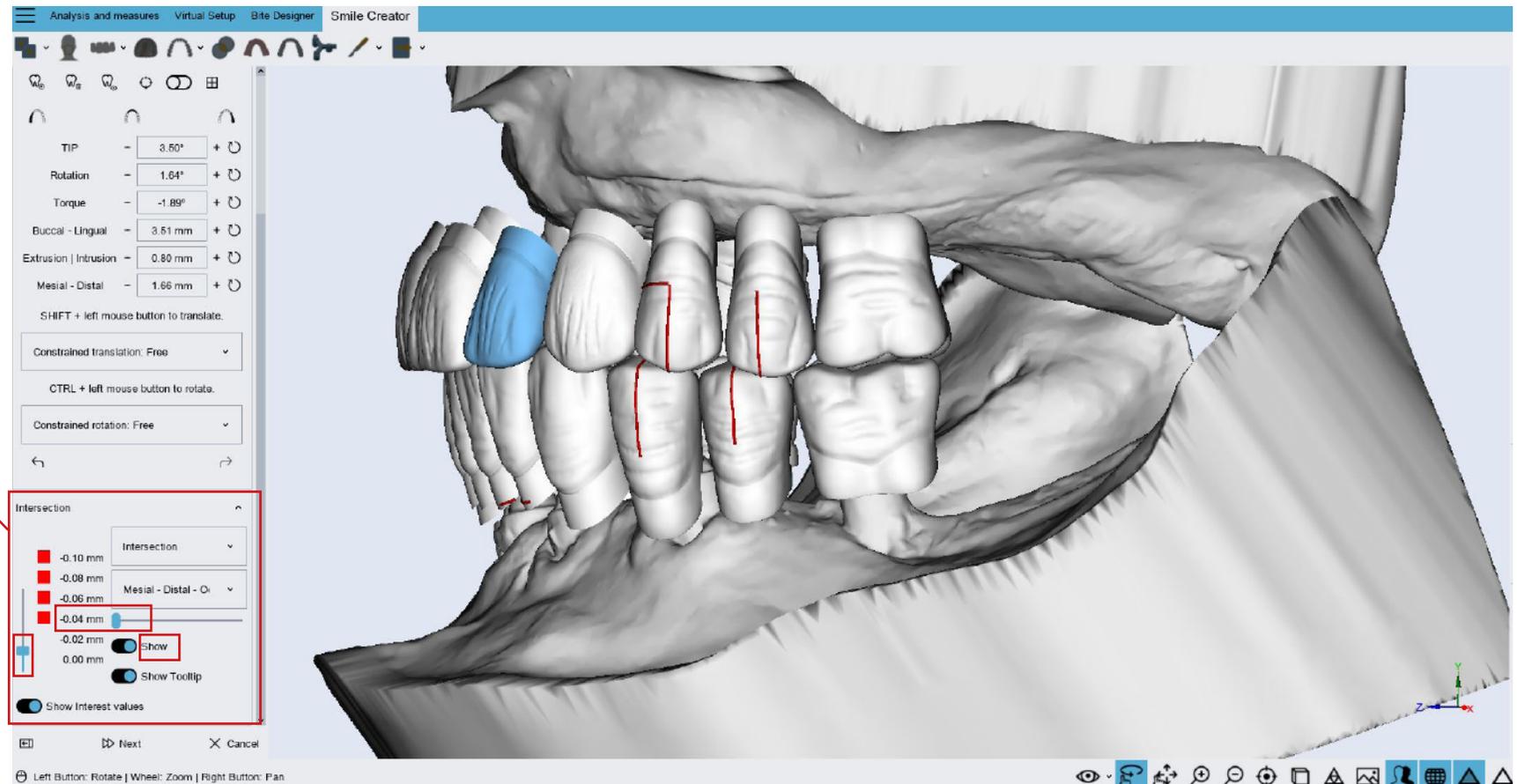
Planimetric de Setup

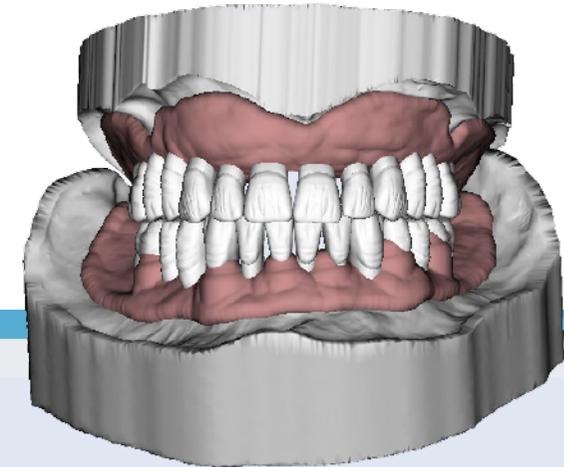
#	18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
T	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BL	0.00	0.00	1.68	1.68	1.60	2.88	3.43	3.79	3.79	3.43	2.88	1.60	1.68	1.68	1.04	0.00
EI	0.00	0.00	0.14	0.47	0.96	2.06	1.82	2.63	2.63	1.82	2.06	0.96	0.47	0.14	0.00	0.00
MD	0.00	0.00	4.90	4.29	4.82	2.99	2.52	0.29	0.29	2.52	2.99	4.26	4.26	4.56	0.00	0.00
Ti	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ri	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BL	0.00	0.00	1.39	2.24	2.83	3.54	4.06	4.17	4.17	4.06	3.54	2.83	2.24	1.39	0.00	0.00
EI	0.00	0.00	0.13	0.83	0.83	1.84	1.85	1.97	1.97	1.85	1.84	0.83	0.83	0.13	0.00	0.00
MD	0.00	0.00	4.41	4.34	3.57	2.34	1.98	0.63	0.63	1.98	2.34	3.57	4.04	4.41	0.00	0.00
#	48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38

Group selectors for simultaneous tooth shifting

6° TOOLS AVAILABLE FOR TOOTH ASSEMBLY

In this area you can view any intersections between the teeth





7° DRAWING OF THE BASE

Analysis and measures | Virtual Setup | Bite Designer | Smile Creator

3D Denture Guide | Plaque

Thickness - 2.00 +

Offset from model - 0.00 +

Drill radius - 0.00 +

Remove undercuts

Help

To define the cutting line. Press SHIFT key, and click or double-click or drag with the mouse over the model to add the control points of the line. The blue arrow indicates the portion of the model that will be used. Make sure that the point is within the selection. Press CTRL key and drag with the mouse to move the control point.

Left Button: Rotate | Wheel: Zoom | Right Button: Pan

0°
18°
36°
54°
72°
90°

Activating this function allows to create the base by removing undercuts

How to draw the base?

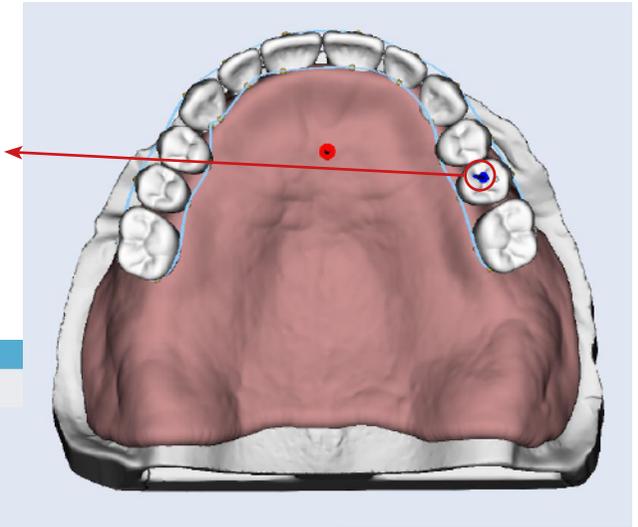


M3D STUDIO - DENTURE GUIDE MODULE

Digital setup software

8° REALIZATION THROUGH TEMPLATE POINTS (GUIDE THAT ALLOWS TOOTH PLACEMENT)

NB: important to place the blue arrow in the occlusal part of the tooth to allow the software to correctly place the template



3D Denture Guide | Template

Thickness - 1.30

Offset from model - 0.15

Drill radius - 0.00

Remove undercuts

Help

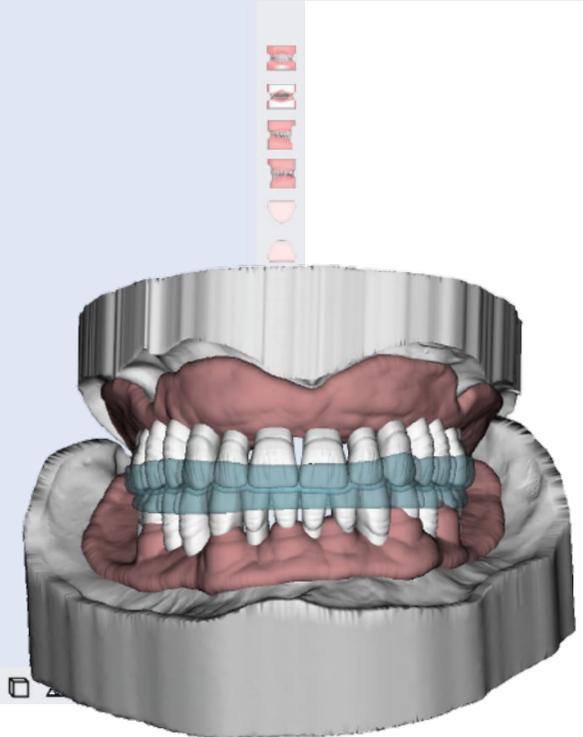
To define the cutting line. Press SHIFT key, and click or double-click or drag with the mouse over the model to add the control points of the line. The blue arrow indicates the portion of the model that will be used. Make sure that the point is within the selection. Press CTRL key and drag with the mouse to move the control point.

Next Cancel

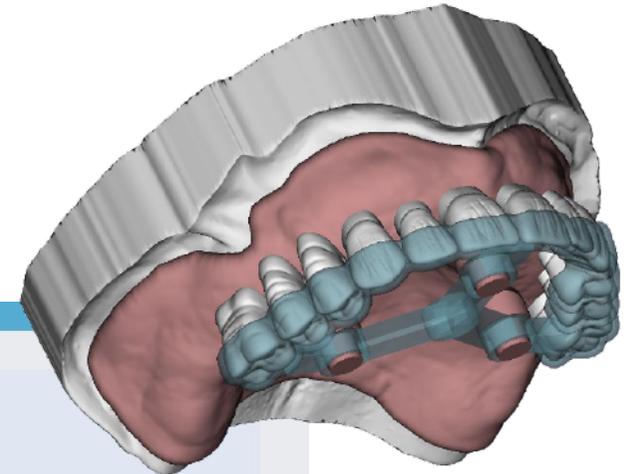
Left Button: Rotate | Wheel: Zoom | Right Button: Pan

The most suitable thickness can be chosen.
Recommended thickness: 0.90

Can choose the most suitable offset



9° CREATION OF THE TRIPOD (BASE-TEMPLATE LINK)



Guide

- Inner rings' diameter - 5.00 mm +
- Outer rings' diameter - 7.00 mm +
- Rings' height - 3.00 mm +
- Internal cylinders' tolera... - 0.30 mm +
- External cylinders' height - 2.00 mm +
- Internal cylinders' height - 3.50 mm +
- Automatic diameter calculation
- Internal cylinders' diam... - 7.10 mm +
- Ring's offset 0 - 3.00 mm +
- Ring's offset 1 - 3.00 mm +
- Ring's offset 2 - 3.00 mm +

Help

Double-click on the model to add the control point.

Left Button: Rotate | Wheel: Zoom | Right Button: Pan

Place the control point between the two central incisors in the center of the template (approximately)

Control points are placed between the second premolar and first molar for more stability

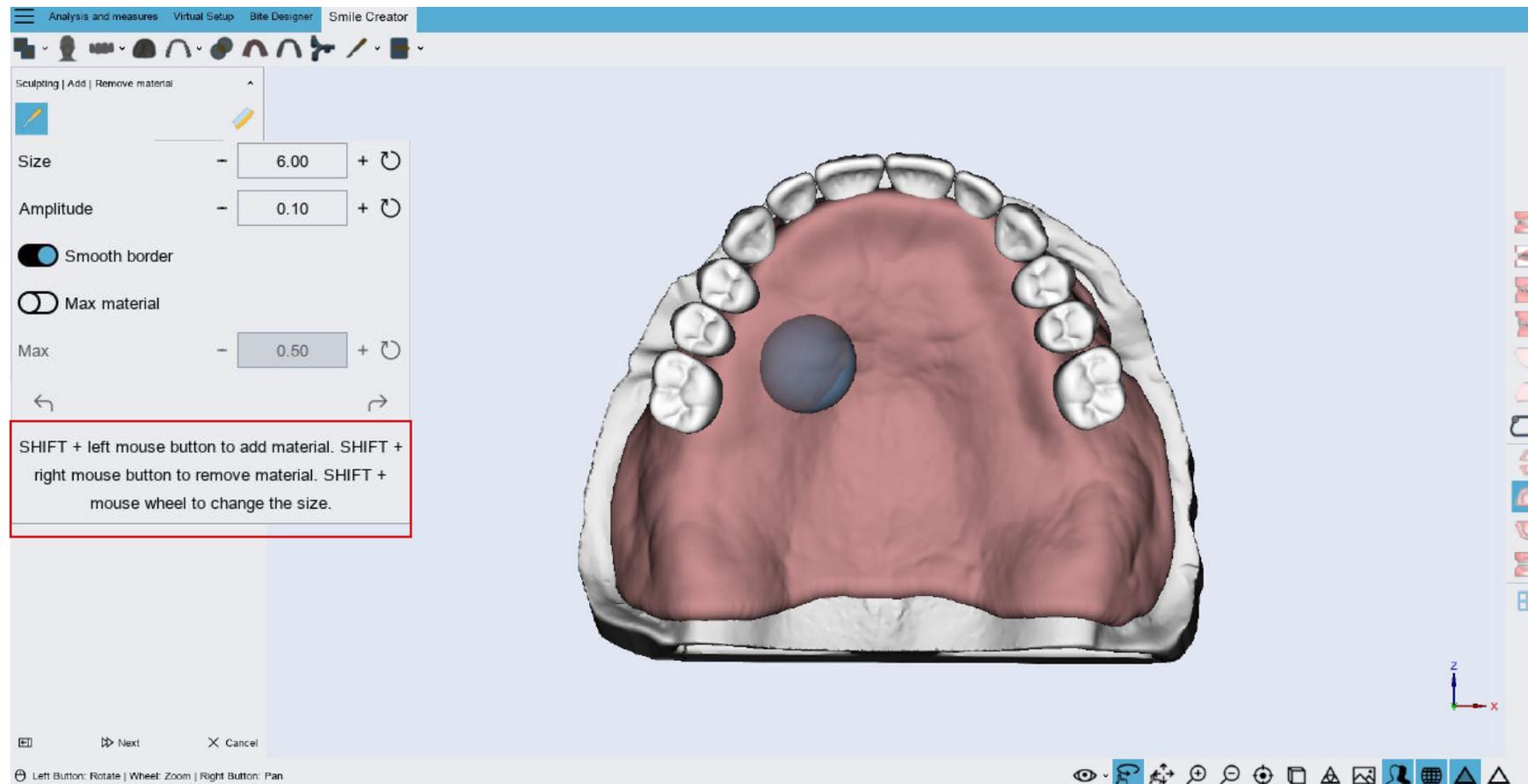
Useful tool for dislocating pins more or less centrally

Connect the dots to the plate so as not to create interference

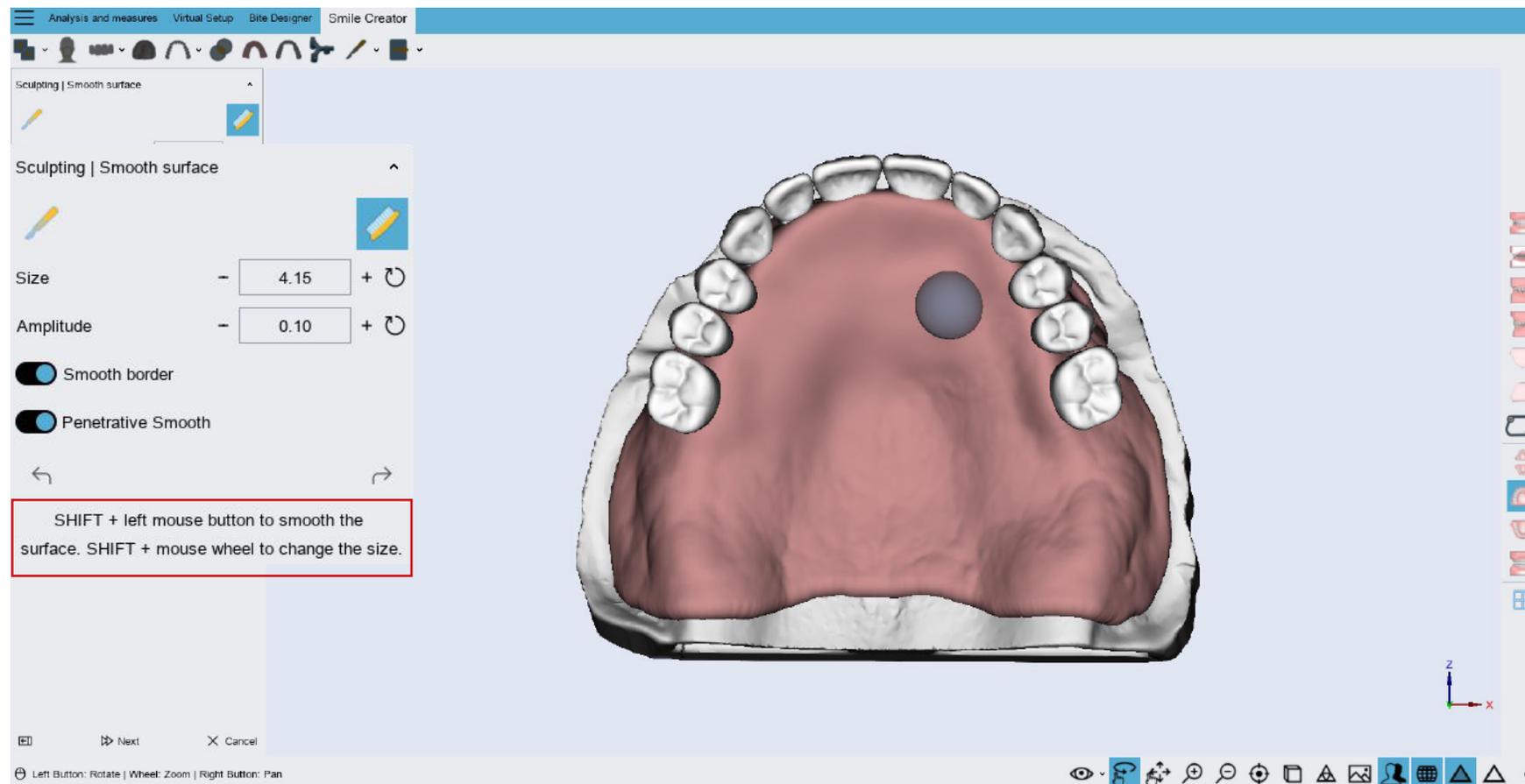
WITH THE USE OF
ACRY SMART AND **ACRY PLUS**
WE RECOMMEND THE FOLLOWING STEPS:

BASE MODELING AND
EXPORTING STL FILES

10° BASE MODELLING UP TO THE NECK OF THE TOOTH TO AVOID UNDERCUTS.



10° BASE MODELING (SMOOTHING THE SURFACE)

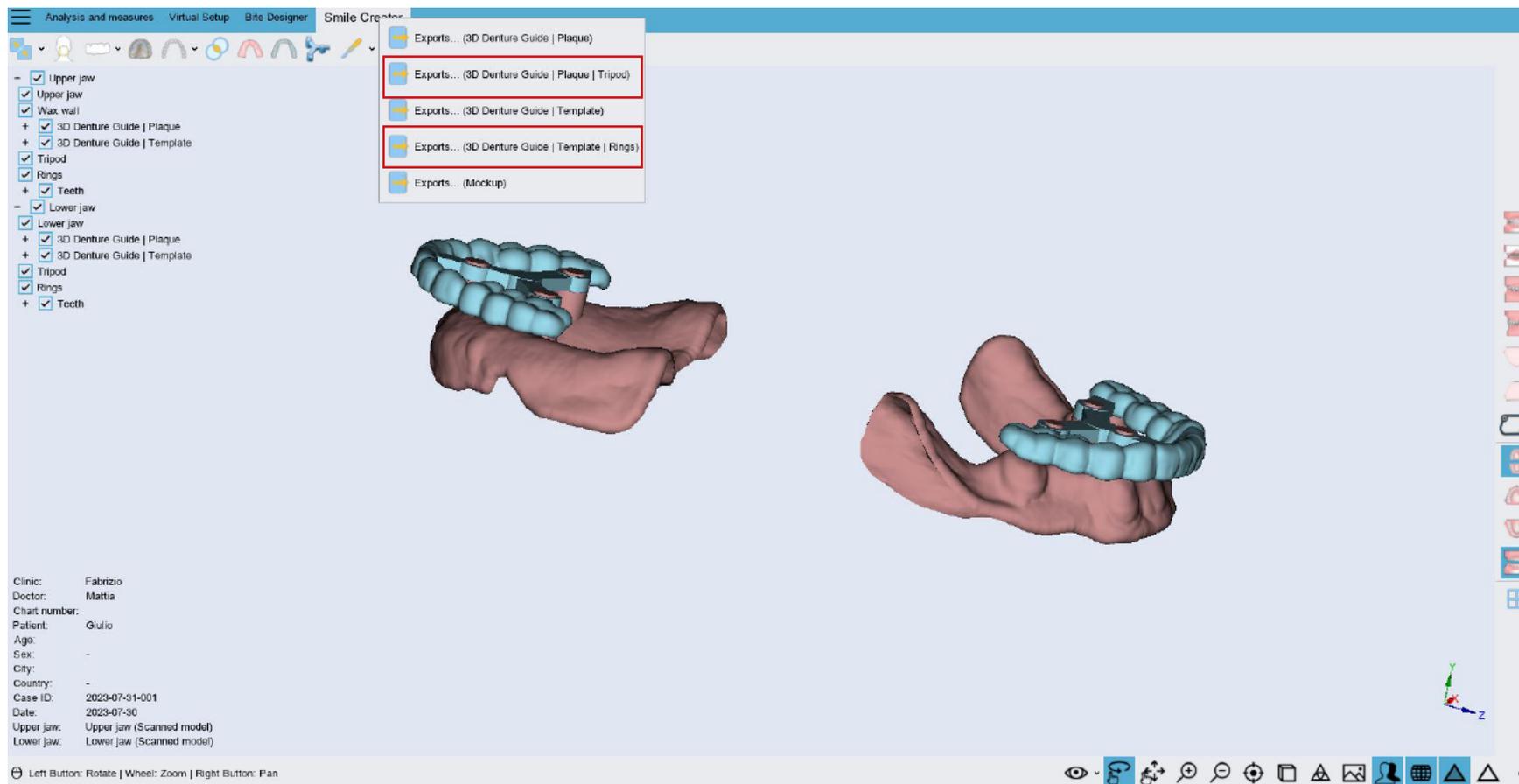




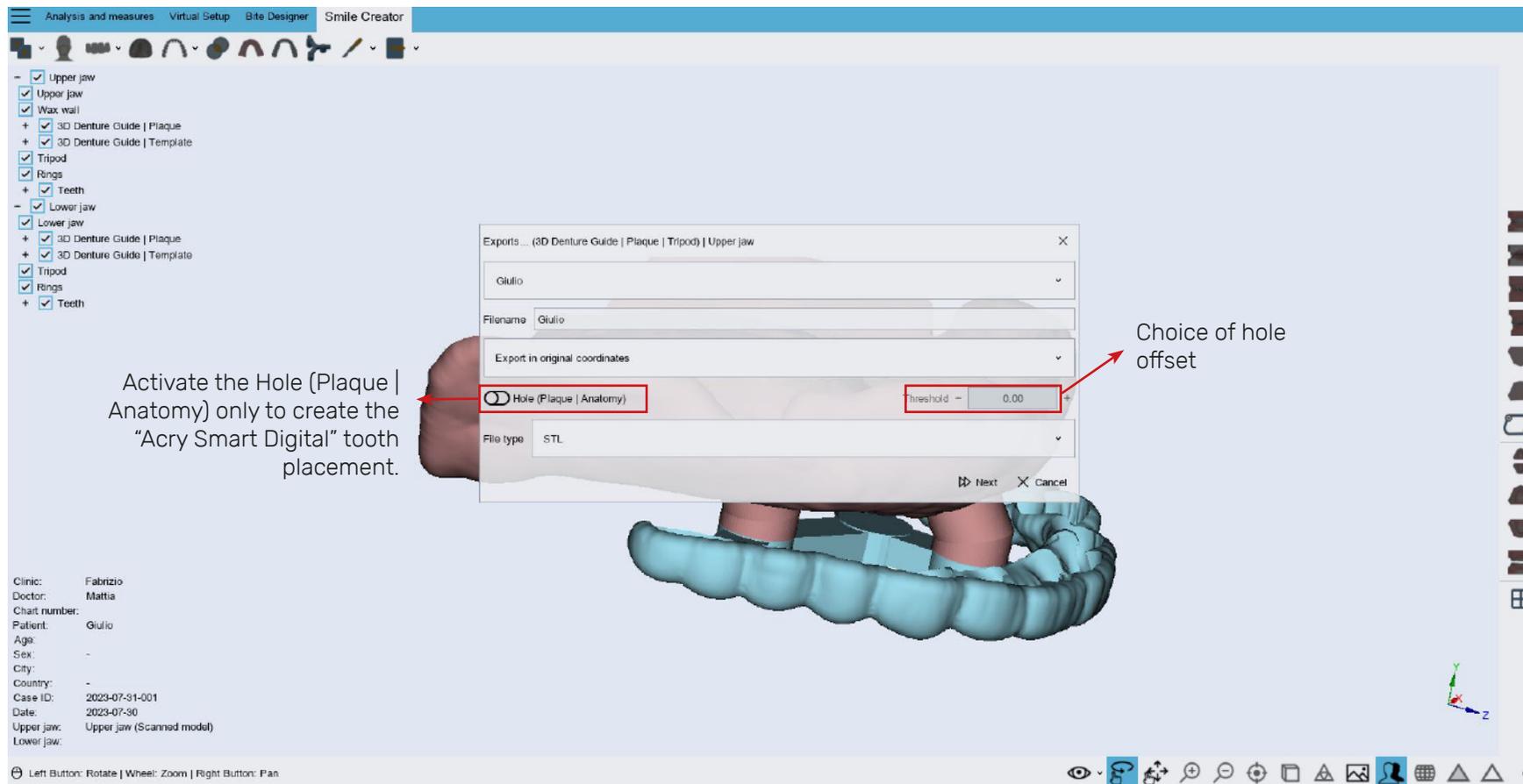
M3D STUDIO - DENTURE GUIDE MODULE

Digital setup software

11° FILE EXPORT



11° EXPORT OF THE BASE WITH A HOLE. USEFUL WHEN THE TRIPOD TOUCHES THE TOOTH OR TO DRILL THE BASE NEAR THE NECK

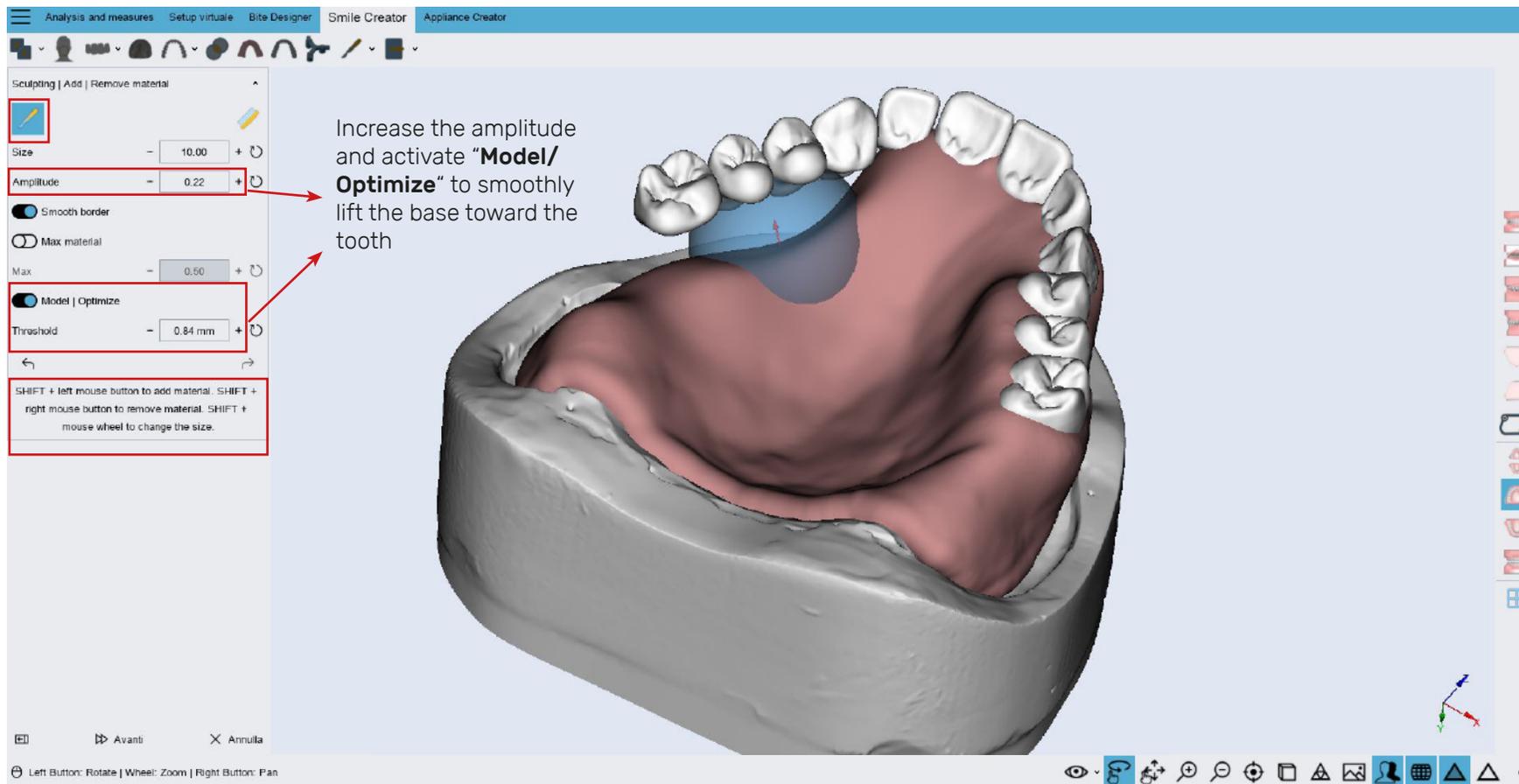


WITH THE USE OF
ACRY SMART DIGITAL

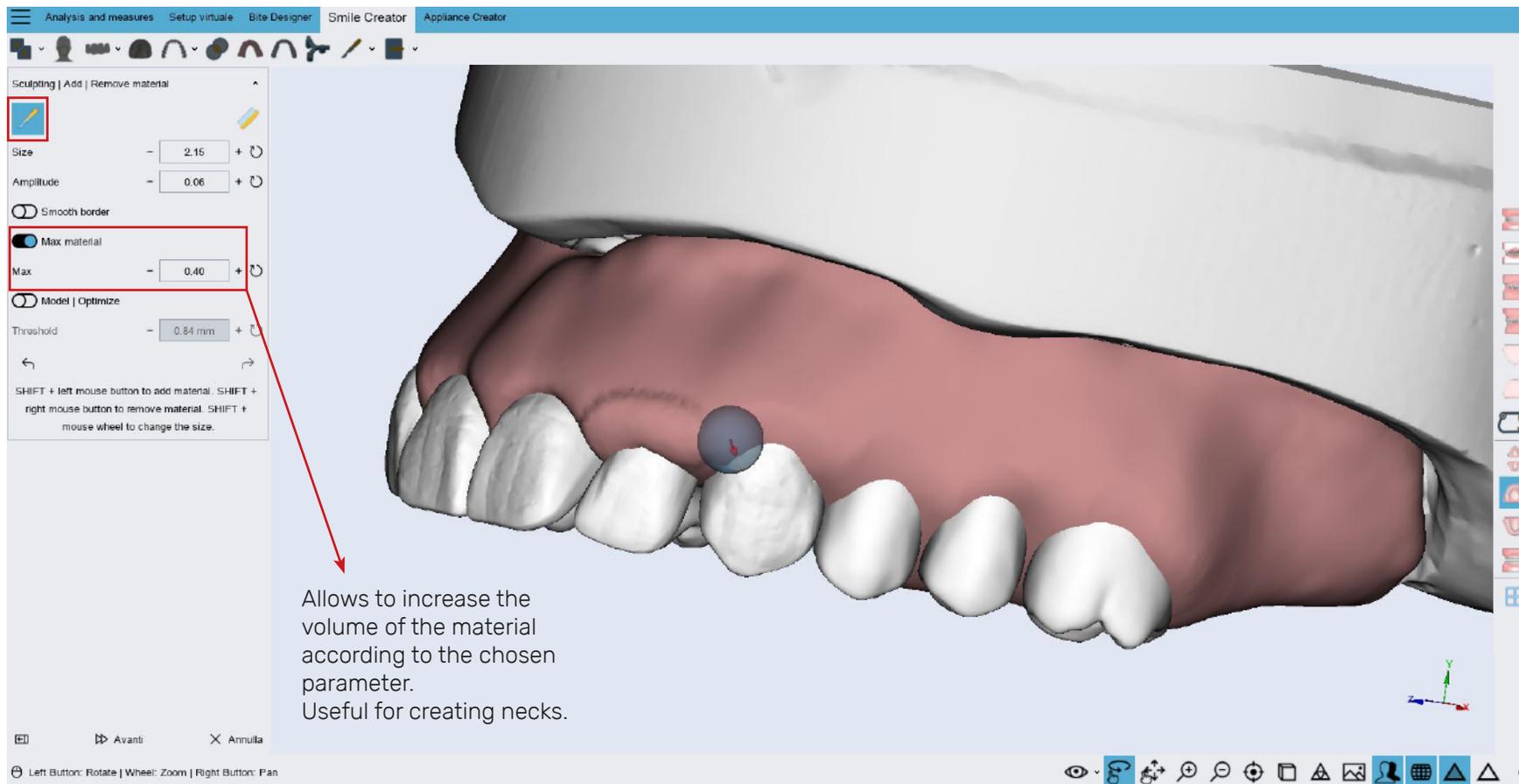
WE RECOMMEND THE FOLLOWING STEPS:

GUM MODELING AND
EXPORTING STL FILES

10° GUM / GINGIVA DESIGN

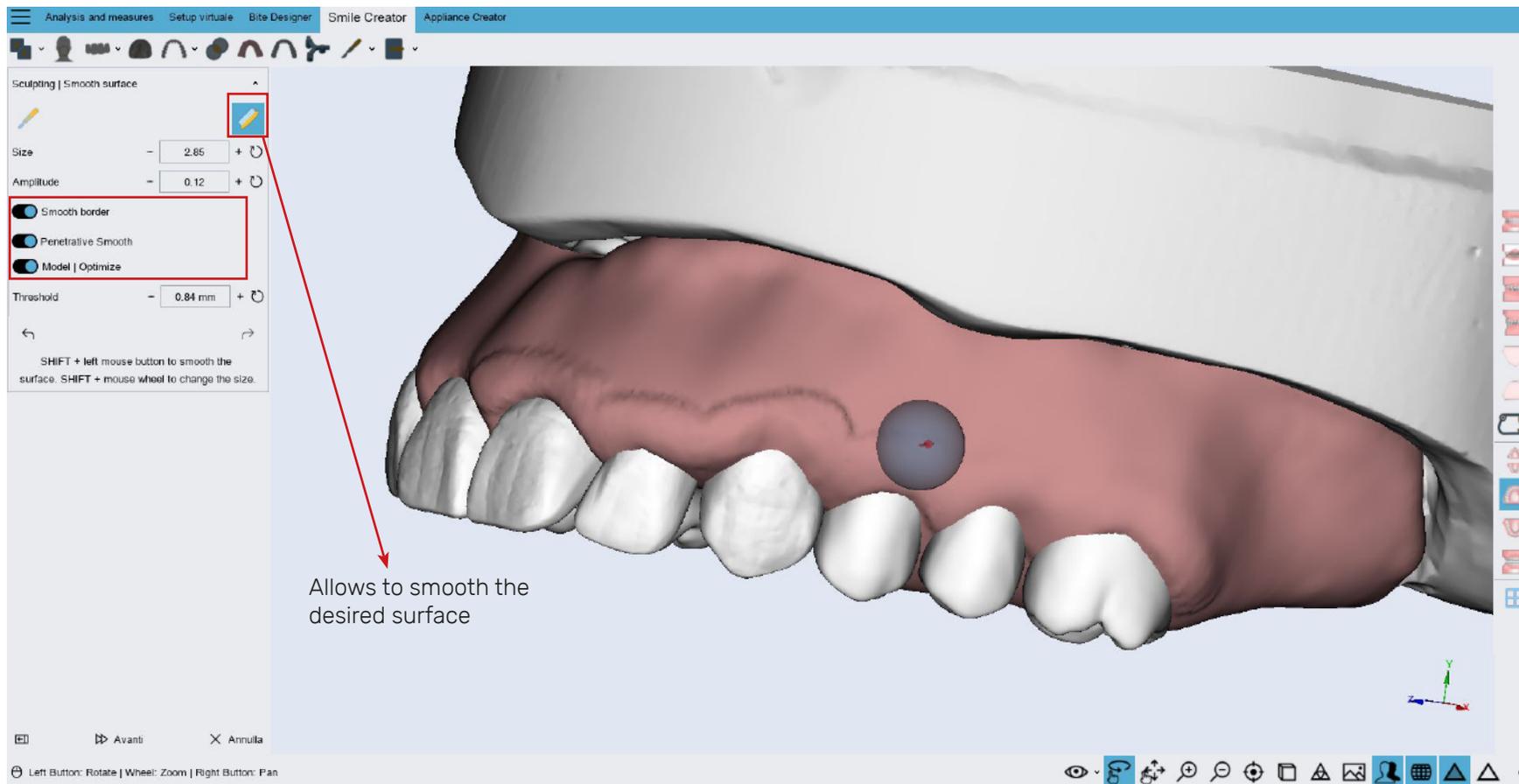


11° GUM / GINGIVA DESIGN



Allows to increase the volume of the material according to the chosen parameter. Useful for creating necks.

11° GUM / GINGIVA DESIGN

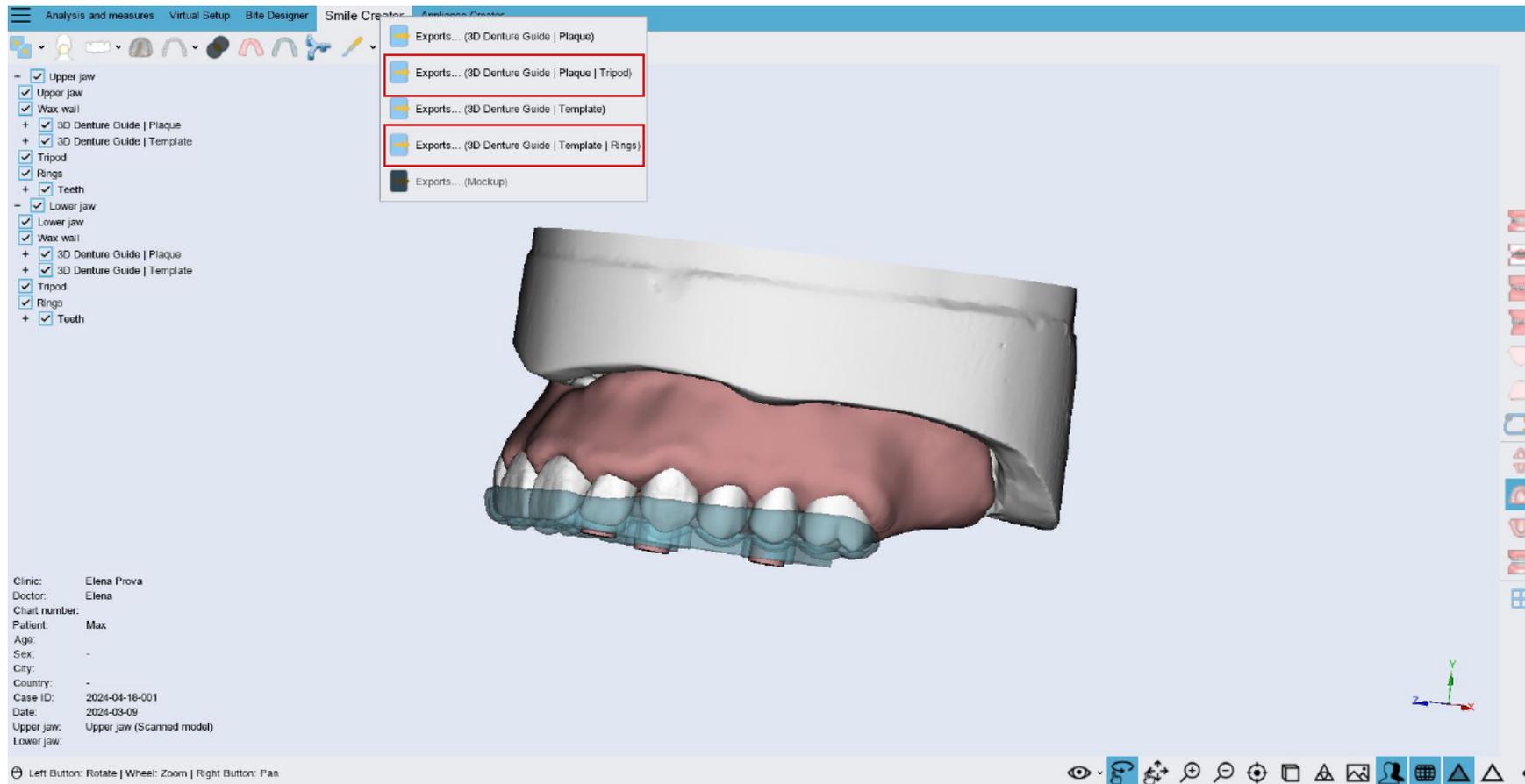




M3D STUDIO - DENTURE GUIDE MODULE

Digital setup software

12° FILE EXPORT



12° BASE EXPORT WITH TOOTH LODGING

The screenshot shows the 'Exports' dialog box in the software. The dialog box is titled 'Exports... (3D Denture Guide | Plaque | Tripod) | Upper jaw'. It contains the following fields and options:

- Max (dropdown)
- Filename: Max
- Exports (Axis Z) (dropdown)
- Threshold: 0.00 (input field)
- Options: Plaque, Plaque + Hole, Plaque + Anatomy (Expert mode) (radio buttons)
- Buttons: Next, Cancel

Annotations with red arrows provide the following information:

- 'Choice of lodging offset' points to the 'Threshold' field.
- 'Base export without tooth sockets' points to the 'Plaque' option.
- 'Base export with tooth sockets' points to the 'Plaque + Anatomy (Expert mode)' option.
- 'Exporting the mock-up to be printed with 3D resin as a first try-in' points to the 'Plaque + Anatomy (Expert mode)' option.

On the left side of the software interface, there is a tree view with the following items checked:

- Upper jaw
 - Upper jaw
 - Wax wall
 - 3D Denture Guide | Plaque
 - 3D Denture Guide | Template
 - Tripod
 - Rings
 - Teeth
- Lower jaw
 - Lower jaw
 - Wax wall
 - 3D Denture Guide | Plaque
 - 3D Denture Guide | Template
 - Tripod
 - Rings
 - Teeth

At the bottom left, patient information is displayed:

Clinic: Elena Prova
 Doctor: Elena
 Chart number:
 Patient: Max
 Age:
 Sex: -
 City:
 Country: -
 Case ID: 2024-04-18-001
 Date: 2024-03-09
 Upper jaw: Upper jaw (Scanned model)
 Lower jaw:

At the bottom, there is a status bar: 'Left Button: Rotate | Wheel: Zoom | Right Button: Pan' and a toolbar with various icons.



Scan the QR Code
and learn more about the Denture Guide

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